HazMat/WMD Training Department

Illicit Drug Labs

A Safe Response for Public Safety Personnel

Participant Guide

Developed by

International Association of Fire Fighters

Funded By
National Institute for Occupational Safety and Health
National Institute of Environmental Health Sciences
Department of Transportation

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Indicates an individual participant activity is recommended.

Indicates participants should be directed to complete the reading independently.

Indicates a team activity is recommended.

Module 1 - Introduction to Illicit Drug Labs and APIE

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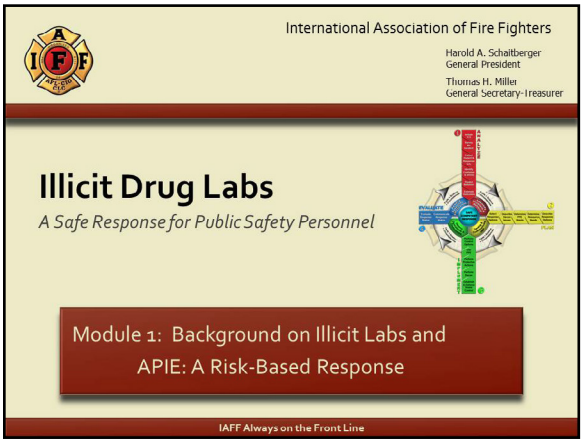

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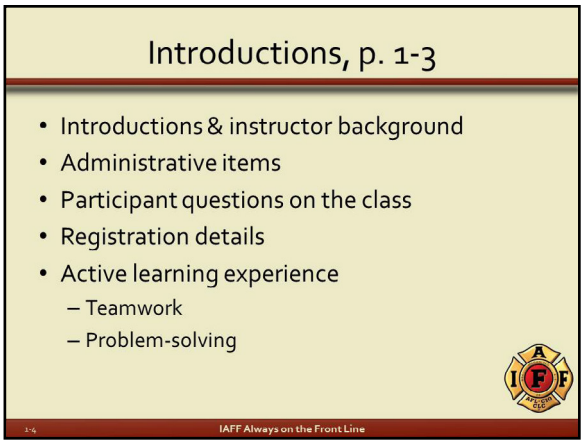

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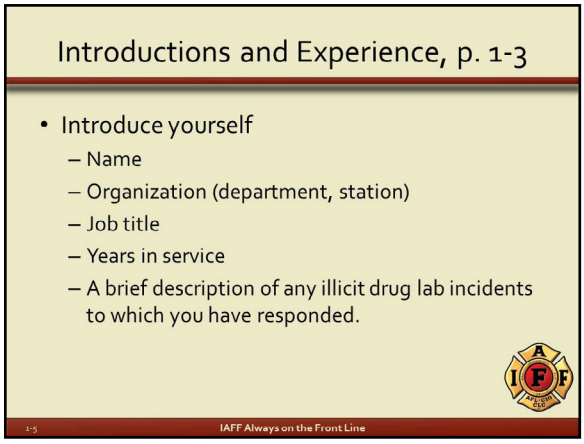

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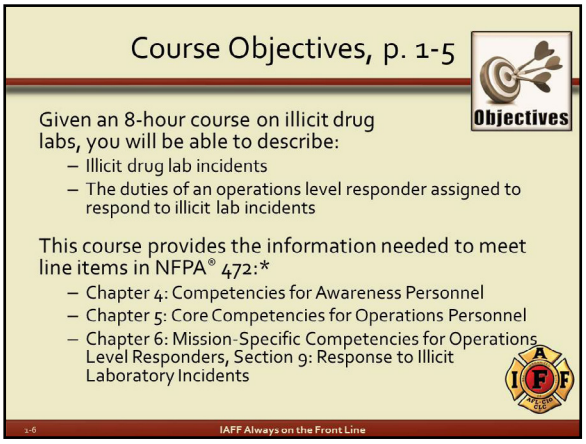
Welcome

Welcome on behalf of the International Association of Fire Fighters (IAFF) and General President Harold A. Schaitberger and General Secretary-Treasurer Edward A. Kelly. The General President has taken a special interest in the health, safety and welfare of all IAFF members and as a result, spends considerable time to secure funding for programs like this one.

According to the 2006 National Drug Threat Assessment, methamphetamine production is decreasing as a result of increased law enforcement, public awareness and regulation of the sale of key ingredients. However, the production and abuse of illicit drugs will continue to pose considerable threats to emergency responders nationwide as the raw materials used are highly volatile—resulting in fire, explosions and the release of toxic substances. In addition, methamphetamine users and suppliers are often unpredictable and dangerous. Research published by the National Fire Academy reports that in 112 illicit drug lab incidents in five states, more than half of 155 injuries were to first responders.

Responding to incidents involving illicit drug labs requires a high level of technical expertise. First responders need to understand:

- The chemistry involved in producing illicit drugs
- How to minimize the risk of explosions, fires, chemical burns and toxic fumes
- How to handle, store and dispose of the hazardous materials used in illicit drug labs
- The laws that govern the manufacture of chemicals, hazardous materials, occupational safety, environmental protection and child protection
- How to collaborate with personnel from various agencies, particularly law enforcement



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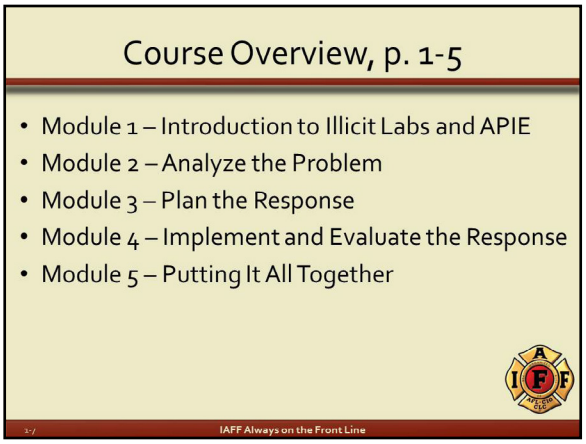

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Course Overview

Unit 1 – Introduction to Illicit Drug Labs and APIE

- Types, categories and distribution of illicit drug labs
- Illicit drug lab facts
- Common locations for illicit drug labs
- APIE: A Risk-Based Response Process

Unit 2 – Analyze the Problem

- Clues to help you recognize possible drug labs
- Hazards at illicit drug labs
- Safety procedures and tactical guidelines
- Hazardous and safe actions for responders at illicit drug labs

Unit 3 – Plan the Response

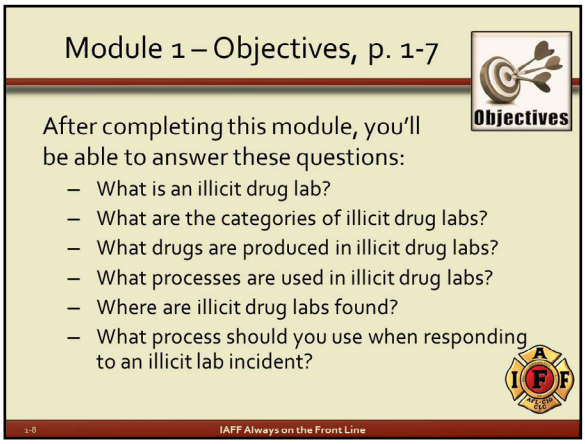
- Overview and selection of personal protective equipment (PPE)
- Tactics to be used based on mission-specific operation
- Overview of detection and monitoring devices
- Decontamination of suspects and evidence

Unit 4 – Implement and Evaluate the Response

- Fire department support
- Evidence preservation
- Entry
- Disposal of waste and explosive devices
- Deactivation phase

Unit 5 – Putting It All Together

- APIE Review
- Case Study Scenarios


Module 1 – Objectives, p. 1-7
Objectives
After completing this module, you'll be able to answer these questions:
– What is an illicit drug lab?
– What are the categories of illicit drug labs?
– What drugs are produced in illicit drug labs?
– What processes are used in illicit drug labs?
– Where are illicit drug labs found?
– What process should you use when responding to an illicit lab incident?
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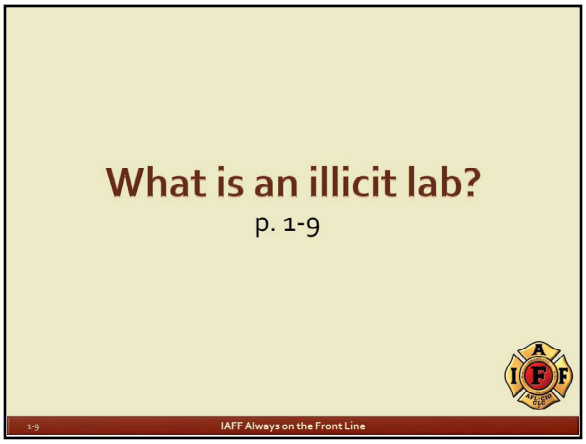
Module 1 - Learning Objectives

After completing this module, you will be able to:

- Define the terms:
  - Illicit drug labs
  - Illicit weapons of mass destruction (WMD) labs
- Describe two types of illicit drug labs.
- Describe three categories of illicit drug labs.
- Identify the drugs produced in illicit drug labs.
- Identify three methods used in illicit drug labs.
- Describe historic trends in methamphetamine use and production.
- Identify at least four locations where illicit drug labs can be found.
- Describe the four stages of APIE: A Risk-Based Response Process.



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Illicit Labs: Definitions

What Is an Illicit Drug Lab?

In any emergency situation, fire fighters run the risk of exposure to hazardous materials. Illicit drug labs are especially hazardous.

Illicit drug labs are illegal operations and sites that manufacture controlled substances. They range from crude makeshift operations to highly sophisticated facilities. There are small labs where users make the drug for themselves and super labs producing large amounts for sale. Fire fighters are most likely to encounter the smaller labs.

Due to the chemicals involved, **response to an illicit drug lab is always a hazardous materials incident**. Fire fighters face health and safety hazards from both toxic chemicals and dangerous people. A response to an illicit drug lab may be one of the most unpredictable situations you will encounter.

Fire fighters often discover illicit drug labs as a result of neighbors calling the department about suspicious odors. One out of every five labs is discovered after exploding or catching on fire. Other times, fire fighters accompany law enforcement on a planned raid. Since they are used to manufacture illegal drugs, **illicit drug labs are always crime scenes**.

Primary responsibility belongs to law enforcement, but the fire department may be involved in other roles such as decontamination. Use a high degree of caution when responding to a suspicious location or when providing support for a planned raid. Know your specific role so you can properly protect your health and safety. The interplay between the fire department and law enforcement will be discussed in detail later in the course. It is also important to be aware of different terminology used by the various agencies you may work with on an incident. Many law enforcement agencies use the term clandestine lab instead of illicit lab.

What Is an Illicit WMD Lab?

Another type of illicit lab you may encounter is a lab where weapons of mass destruction (WMD) are being manufactured. According to Title 18, USC Section 2332a, these weapons may include:

- Any destructive device such as an explosive, incendiary or poison gas, bomb, grenade or rocket having a propellant charge of more than four ounces; any missile having an explosive or incendiary charge of more than ¼ ounce; any mine or device similar to the above
- Any weapon involving toxic or poisonous chemicals
- Any weapon involving a disease organism
- Any weapon that is designed to release radiation or radioactivity at a level dangerous to humans

Slide 1-10

Slide 1-11

Illicit Drug Labs: Types and Categories

Types of Illicit Drug Labs

Illicit drug labs can be divided into two types.

Type	Description
Super Labs *(Figure 1-1a)*	Super Labs are qualified by the use of large quantities of materials, multiple gallons and the use of sophisticated lab ware such as reflux columns, round bottom flasks and a separatory funnel. They will also use large amounts of precursor and chemicals. They produce finished product batches greater than a quarter or one-third pound. These labs are in production for the criminal to sell for profit, however they make up a very small number of the annual labs seized in the U.S. Beyond the risk of chemicals, these labs will have higher potential for armed operators and booby traps. Also, a lab with this type of glassware could potentially be a chemical or biological lab.
Mom & Pop Lab *(Figure 1-1b)*	Mom & Pop labs are qualified by smaller amounts of materials, (precursor, catalyst, solvents) and the use of unsophisticated lab ware such as plastic bottles, kitchen type glass ware and utensils. These labs have spread across the U.S. over the last two decades and make up a very high percentage of lab seizure. They also produce smaller amounts of finished product in grams. Most of the finished product will be for personal use as well as some drug sales in order to maintain the continued manufacturing.

Figure 1-1a

Figure 1-1b

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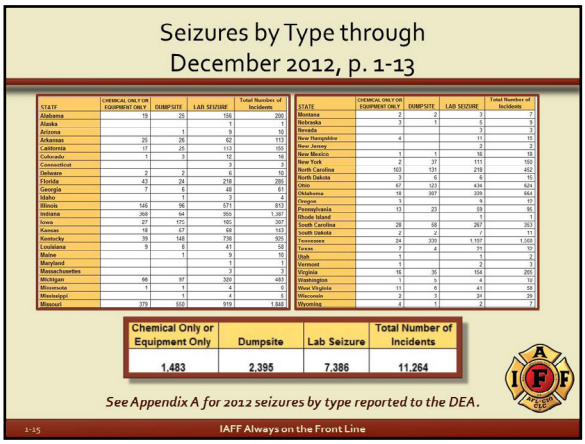
Slide 1-14



STATE	CHEMICAL ONLY OR EQUIPMENT ONLY	DUMPSITE	LAB SEIZURE	Total Number of Incidents
Alabama	19	25	156	200
Alaska			1	1
Arizona		1	9	10
Arkansas	25	26	62	113
California	17	25	113	155
Colorado	1	3	12	16
Connecticut			3	3
Delaware	2	2	6	10
Florida	43	24	218	285
Georgia	7	6	48	61
Idaho		1	3	4
Illinois	146	96	571	813
Indiana	368	64	955	1,387
Iowa	27	175	105	307
Kansas	18	67	68	153
Kentucky	39	148	738	925
Louisiana	9	8	41	58
Maine		1	9	10
Maryland			1	1
Massachusetts			3	3
Michigan	66	97	320	483
Minnesota	1	1	4	6
Mississippi		1	4	5
Missouri	379	550	919	1,848

STATE	CHEMICAL ONLY OR EQUIPMENT ONLY	DUMPSITE	LAB SEIZURE	Total Number of Incidents
Montana	2	2	3	7
Nebraska	3	1	5	9
Nevada			3	3
New Hampshire	4		11	15
New Jersey			2	2
New Mexico	1	1	16	18
New York	2	37	111	150
North Carolina	103	131	218	452
North Dakota	3	6	6	15
Ohio	67	123	434	624
Oklahoma	18	307	359	684
Oregon	1		6	12
Pennsylvania	13	23	59	95
Rhode Island			1	1
South Carolina	28	58	267	353
South Dakota	2	2	7	11
Tennessee	24	320	1,197	1,568
Texas	7	4	79	90
Utah	1		1	2
Vermont	1		2	3
Virginia	16	35	154	205
Washington	1	3	6	10
West Virginia	11	6	41	58
Wisconsin	2	3	34	39
Wyoming	4	1	2	7

Chemical Only or Equipment Only	Dumpsite	Lab Seizure	Total Number of Incidents
1,483	2,395	7,386	11,264

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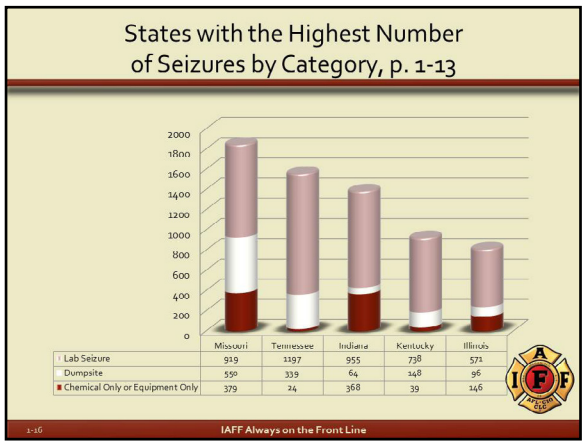

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Illicit Drug Labs: Types and Categories

Categories of Illicit Drug Labs

Illicit drug labs can be divided into three categories.

Type	Description	Hazards
Active Labs (Laboratories)	Labs in the process of manufacturing an illegal drug	Chemical reactions taking place Open containers Flammable and toxic atmospheres Very high exposure to chemical and physical hazards
Boxed Labs (Chemical/Glass/ Equipment)	Contain the precursors, reagents, solvents and catalysts for the production of illegal drugs, but are not in the process of production at time of discovery	Chemical Physical
Dumpsites	Contain excess chemicals, hardware and miscellaneous equipment that were used in production of an illegal drug	Hypodermic needles, chemicals Very high exposure to chemical and physical hazards

Appendix A, U.S. Drug Enforcement Administration Methamphetamine Lab Seizures by Type, shows the seizures in 2012 for all fifty states.

Figure 1-2

From left to right clockwise: active lab, dumpsite and boxed lab (chemical/glass/equipment)

Illicit Drugs Produced, p. 1-15
LSD
DEA
GHB
Meth
Ecstasy
1-17
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Illicit Drug Lab: Facts and Terminology

What Drugs Are Made in Illicit Drug Labs?

In the United States, most illicit drug labs manufacture methamphetamine. Illicit drug labs are the #1 source for methamphetamine. Less common drugs produced in illicit drug labs include:

- Amphetamine
- Phentermine
- Fentanyl
- GHB (date rape drug)
- LSD
- Marijuana (when grown indoors)
- MDMA (Ecstasy)
- Methaqualone
- Methcathinone (cat)
- PCP (phencyclidine/angel dust)
- P-2-P (phenyl-2-propanone)

Figure 1-3.

From left to right clockwise: Ecstasy, GHB and LSD (DEA)

Slide 1-18

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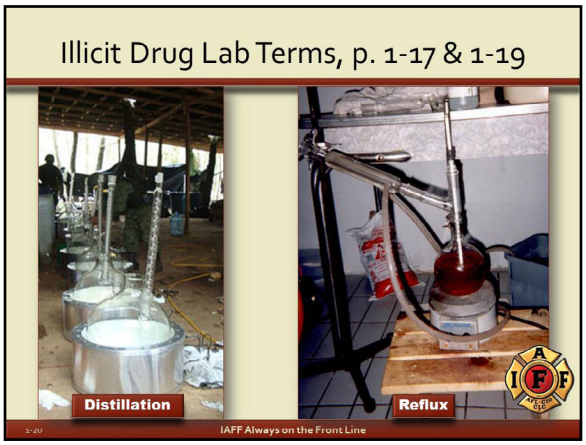

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Illicit Drug Labs: Facts and Terminology

Illicit Drug Lab Terms

There are a number of terms used when discussing chemicals at illicit drug labs.

Illicit Drug Lab Terms	
Term	**Definition**
Catalyst	A substance that allows the chemical reaction to take place under different conditions (shorter time, lower temperature) than otherwise possible.
Distillation	Heating a liquid to produce vapors, then condensing the vapors to produce a more pure or refined substance.
Controlled Substance	A drug or chemical substance whose possession and use are controlled by law. The U.S. Departments of Justice and Health and Human Services decide which drugs are considered controlled substances. The federal government characterizes controlled substances according to their potential for abuse, ability to cause physical or psychological dependence, and whether or not there is any accepted medical use for the drug. There are five categories of controlled substances: Schedules I, II, III, IV and V. Schedule I controlled substances have a high potential for abuse and no accepted medical use (i.e., heroin, ecstasy, LSD, methcathinone, methaqualone). Details about Schedule II, III, IV and V drugs are shown in *Appendix B, Controlled Substance Act (CSA)*.

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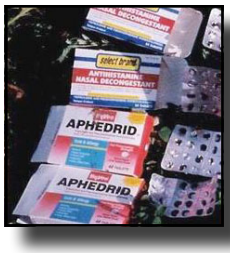
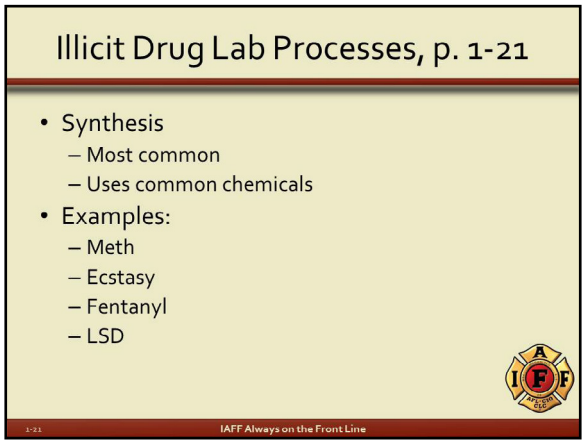
Illicit Drug Lab Terms	
Term	**Definition**
Precursor 	A raw material or controlled substance that becomes part of the finished drug when it is used in a chemical reaction.
Reagent	A substance that reacts chemically with one or more precursors but does not become part of the finished product.
Reflux	A method of heating liquid which allows the vapors to condense and return to be heated.
Solvent	Any liquid that is used to dissolve a substance (e.g. ethers, alcohols and toluene).



Slide 1-21

Slide 1-22

On the facing page, figure 1-4a is a RedP super lab and figure 1-4b is a gas generator. In the hand, a piece of litmus paper can be seen.

Illicit Drug Labs: Manufacturing Processes

Illicit drug labs are categorized by the processes they use to manufacture drugs. This section will describe the three general types of illicit drug lab operations, and provide clues to help you avoid harm from chemicals and dangerous people.

1. Synthesis Labs

Synthesis labs use common chemicals to manufacture drugs. Synthesis labs are the most commonly encountered type of illicit drug lab. Methamphetamine and other synthetic drugs, such as ecstasy, fentanyl, LSD, methcathinone (cat), methaqualone (quaaludes), PCP (angel dust) and phenyl-2-propanone (P-2-P) are produced in synthesis labs.

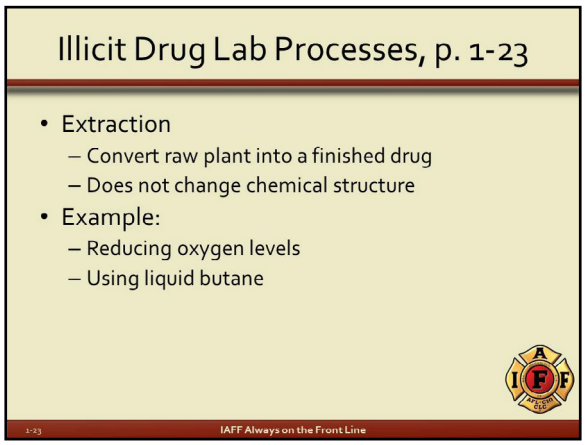
Synthesis labs are particularly hazardous because of the many chemicals used to make the drugs, including precursor chemicals, acids, bases and solvents. Precursors are chemicals that make up part of the finished product. One example of a precursor is pseudoephedrine (an over the counter cold medicine), which can be synthesized into methamphetamine. Acids and bases are reagents used to adjust the pH of a solution. Solvents are used to extract chemicals from mixtures or to dissolve solid chemicals. Specific information on commonly used chemicals will be presented in the next section.

Many precursors are regulated by the Domestic Chemical Diversion Control Act (DCDCA) and the Comprehensive Methamphetamine Control Act (MCA). These laws limit the amount of certain chemicals that any individual may purchase from a single source. Although these laws limit purchases of industrial chemicals, many precursors can be legally purchased in large quantities because they are found in common household items that are not regulated. Cooks also get around the law by purchasing small, legal amounts of chemicals from multiple sources.

In addition to the hazards posed by chemicals used in the manufacturing process, synthesis labs create a large amount of waste. For every pound of methamphetamine produced, five to six pounds of waste are generated (Holton, 2001). This liquid and solid waste contains many hazardous chemicals. Drug lab operators often dispose of waste by pouring them into septic systems, local waterways or onto the ground around the lab. This causes significant environmental contamination.

Figure 1-4a.

Figure1-4b.



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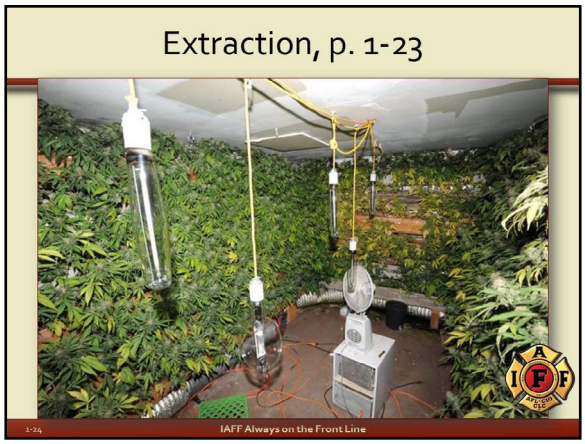
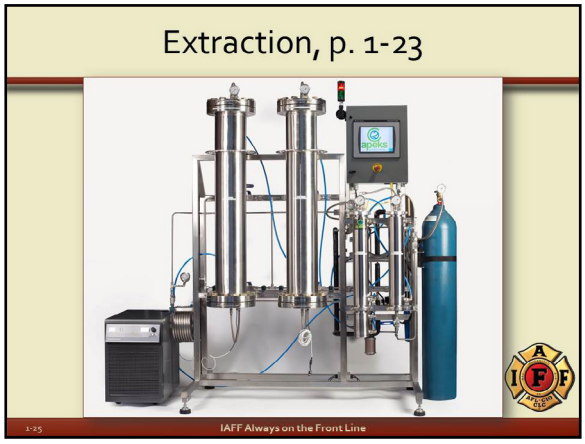


Slide 1-24



Slide 1-25

Illicit Drug Labs: Manufacturing Processes

2. Extraction Operations

Extraction operations convert raw plant material into a finished drug using chemical solvents and/or acids. The chemical structure of the drug is not altered in the process. Extraction operations are used to change opium to morphine, and marijuana to hashish.

Extraction operations include indoor and underground confined space marijuana grow labs. Grow labs allow producers to avoid detection and increase the concentration of tetrahydrocannabinol (THC), the active ingredient in marijuana. Grow labs become hazardous materials incidents when flammable gases are used to increase THC levels. Methods of using such gases include:

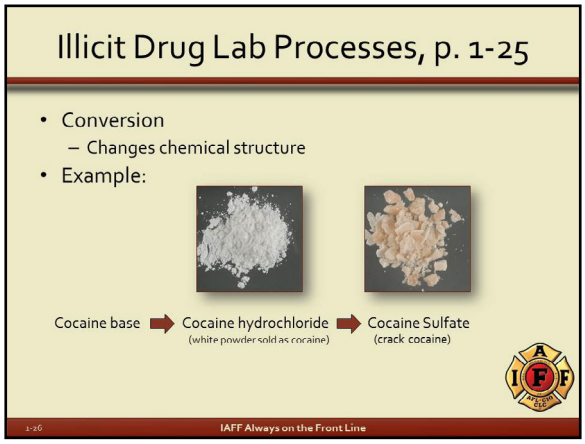
- ***Reducing Oxygen Levels*** – When marijuana is grown at reduced oxygen levels, the plant produces more sap, which in turn produces more THC. Oxygen levels are reduced by flooding the confined area with either propane or carbon dioxide. Both gases displace available oxygen. In addition, propane produces a flammable and explosive atmosphere. Without instrumentation, you have no way of evaluating either oxygen deficiency or flammability. If injured people must be rescued from a confined space, you should follow the Occupational Safety and Health Administration's (OSHA's) rule for Confined Space Entry 29 CFR 1910.146 when entering the area. These procedures are discussed briefly in a later section, The Fire Department's Role.

- ***Using Liquid Butane*** – According to the DEA, liquid butane is used to extract and concentrate THC from cannabis (marijuana) plants. Butane is one of the few substances, along with fats such as butter, which can dissolve THC. Several cases have found that parts of the cannabis plant were steeped in liquid butane to extract concentrated THC liquid, producing hash oil. The flammable liquid has vapors heavier than air. The material is often heated with warm water or an external heat source. It is highly flammable and is an explosive hazard. Additionally, the DEA reports that "Hash oil cooks often attempt to hasten butane evaporation by heating the butane-cannabis mixture on a stove or other heat source, further risking asphyxiation and explosion" (DEA 2005).

Figure 1-5a.

Figure 1-5b.

A grow lab and a butane extraction lab.


Illicit Drug Lab Processes, p. 1-25
• Conversion
– Changes chemical structure
• Example:
Cocaine base
Cocaine hydrochloride
(white powder sold as cocaine)
Cocaine Sulfate
(crack cocaine)
1-26
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Slide 1-26

Illicit Drug Labs: Manufacturing Processes

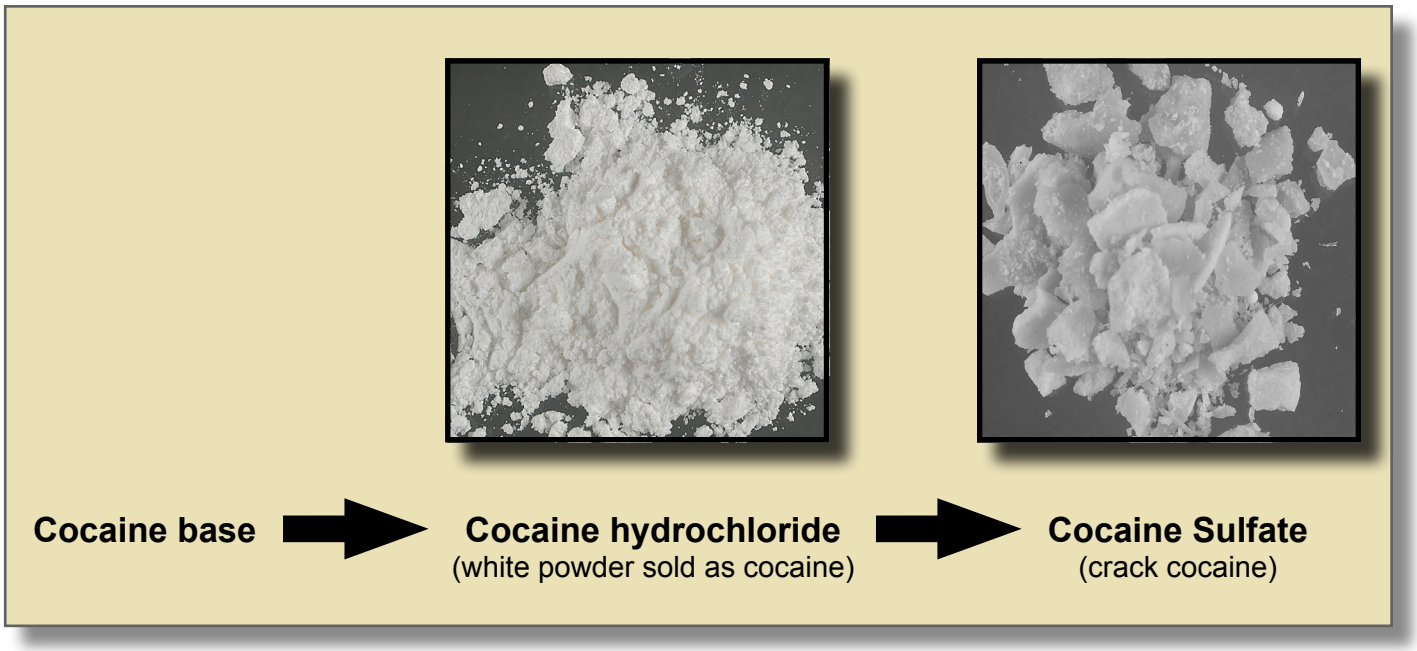
3. Conversion Operations

In conversion operations, a raw/unfinished drug product is changed into a refined/finished drug by changing the chemical structure. Conversion operations are used to convert cocaine base into cocaine hydrochloride (i.e., the white powder sold as cocaine). This cocaine hydrochloride can then be converted into cocaine sulfate, also known as crack cocaine.

Crack cocaine evolved from freebasing, the process of heating (on an open flame), then smoking cocaine. Freebasing is an especially hazardous way to use cocaine because it creates alcohol and ether vapors. These vapors can saturate the user's clothes and ignite from the open flame used as the heat source. To avoid igniting themselves, users began cooking cocaine on electric stoves.

There are several ways to manufacture crack cocaine. One common method uses sodium bicarbonate and water. This is heated up and then cooled. This method drops the base from the compound, making it much more soluble for a quick absorption into the body. This process also lowers the melting point of cocaine from 190° F to around 90° F for the crack, making it much easier to burn and produce the vapors to inhale.

Figure 1-6.



Methamphetamine, p. 1-27
Shards
Tick-tick
Shabu
Glass
Krystal
Speed
Cinnamon
Go-fast
Ice
Chicken-feed
Wake-ups
Stovetop
Mexican-crack
Flash-powder
Meth
Quartz
Redneck-cocaine
Hanyak
Fast
Methlies-quick
Hiropon
Blue-collar-coke
Crank
Pillows
Poor-man
Rock
L.A.-ice
Get-go
Crystal-glass
Crypto
s-coke
s-coffee
Ventana
Tina
Trash
Chalk
Brown
1-27
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Slide 1-27

Methamphetamine Facts

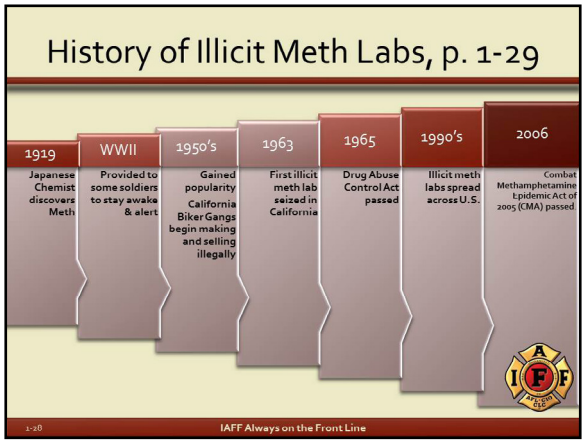
What is Methamphetamine?

Methamphetamine is a synthetic (man-made) stimulant. In rare, highly controlled circumstances, methamphetamine may be prescribed legally to treat narcolepsy, obesity, sleep apnea and attention deficit disorder. More frequently, methamphetamine is abused as an illegal drug.

Methamphetamine comes in two forms: powder or crystals (crystal meth or ice). The crystals may be clear or have a blue tint. Powder may be white or colored, depending on which recipe is followed. Yellow, brown, gray, orange and pink powders have also been observed.

Methamphetamine's most common street names are crank, meth and speed. Other names include:

- Biker's coffee
- Blue-collar coke
- Brown
- Chalk
- Chicken feed
- Cinnamon
- Crink
- Crypto
- Crystal
- Crystal glass
- Crysty
- Fast
- Flash powder
- Get-go
- Glass
- Go-fast
- Hanyak
- Hiropon
- Hot ice
- Ice
- Krystal
- L.A. glass
- L.A. ice
- Methlies quick
- Mexican crack
- Peanut butter crank
- Pillows
- Poor man's cocaine
- Poor man's coke
- Quartz
- Redneck cocaine
- Rock
- Shabu
- Shards
- Stove top
- Tick tick
- Tina
- Trash
- Ventana
- Vidrio
- Wash
- Wake-ups



Slide 1-28

Slide 1-29

Methamphetamine Facts

History of Illicit Methamphetamine Labs

A Japanese chemist discovered methamphetamine in 1919. Similar amphetamine compounds had been synthesized since the late 1800s. In the mid-twentieth century, doctors prescribed methamphetamine as a weight loss drug, decongestant and antidepressant. Some soldiers in World War II were given methamphetamine to stay awake and alert.

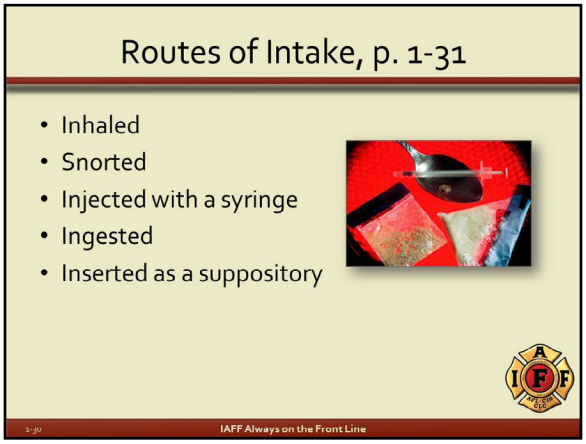
Methamphetamine's popularity grew in the 1950s. College students and truck drivers used it to stay awake at night. Diet drugs containing amphetamine, like Dexedrine, became available over-the-counter and were also popular. Biker gangs in California began making and selling methamphetamine illegally, and are credited with inventing the illicit methamphetamine lab.

The first methamphetamine lab was seized in California in 1963. In 1965, the federal government passed the Drug Abuse Control Act, making methamphetamine and related drugs harder to obtain legally. More users turned to illegal sources, and illicit drug labs became more common.

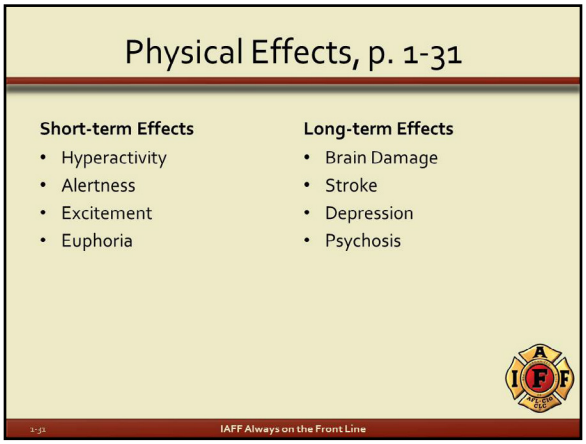
In the 1990s, illicit methamphetamine labs spread across the U.S. In 2004, officers seized illicit methamphetamine labs in every state. Also in 2004, Oklahoma became the first state to restrict sales of over-the-counter cold medicines containing pseudoephedrine (a main ingredient for methamphetamine); several other states followed. In March 2006 the Combat Methamphetamine Epidemic Act of 2005 (CMEA) was signed into law, which regulates the over-the-counter sales of ephedrine, pseudoephedrine and phenylpropanolamine products. Some provisions of the CMEA include daily sales limits and monthly purchase limits, placement of product out of direct customer access, and sales logbooks. The CMEA is found as Title VII of the USA PATRIOT Improvement and Reauthorization Act of 2005 (Public Law 109-177).

The methamphetamine problem, however, is far from solved. After a decline in lab seizures following the passage of CMEA, the number has again increased as individuals and groups engage in activities known as "smurfing" to circumvent the regulation. From 2007 to 2010, the El Paso Intelligence Center (EPIC) reported that clandestine laboratories increased 132 percent, and that total reported clandestine laboratory incidents (labs, dumpsites, chemicals, equipment and glassware) increased 94 percent.

As part of the 2013 report to Congress, the DEA reported that methamphetamine is the most widely abused, domestically produced synthetic drug in the United States.



Slide 1-30



Slide 1-31

Methamphetamine Facts

Routes of Intake

Independent Reading

Methamphetamine can be taken by several routes:

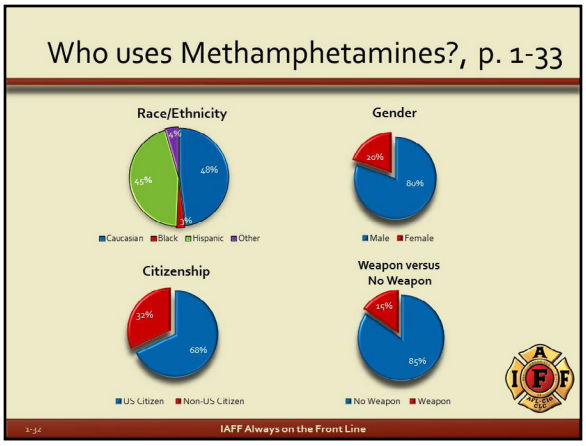
- Inhaled (by smoking crystal meth in a pipe or by inhaling the vapors of heated powder)
- Snorted
- Injected with a syringe
- Ingested (eaten)
- Inserted as a suppository

Physical Effects

Methamphetamine causes significant health and social problems. In the short term, it makes users hyperactive, alert, excited and euphoric. Afterward, users become irritable, anxious and aggressive, and may have mood swings. **Users may become violent.** Because the chemicals in methamphetamine stay in the body for up to 30 hours, a single dose may affect a user's behavior for several days.

In the long term, methamphetamine causes brain damage, stroke, depression and psychosis (hearing voices, delusions). Additionally, methamphetamine inhibits impulse control. People high on methamphetamine are more likely to engage in unsafe sex. HIV infection has increased significantly among methamphetamine users in some parts of the country (New York, San Francisco and Miami).

Methamphetamine is highly addictive. Up to 98% of people who try it become addicted, compared with 10% for alcohol. People can become addicted to methamphetamine after using it just twice. Methamphetamine is less expensive than cocaine and crack, and the high lasts longer. Because it is completely synthetic (i.e., it does not come from a plant like marijuana or heroin), anyone can make methamphetamine with the right recipe, equipment and ingredients.


Who uses Methamphetamines?, p. 1-33
Race/Ethnicity
48%
45%
4%
3%
Caucasian
Black
Hispanic
Other
Gender
20%
80%
Male
Female
Citizenship
32%
68%
US Citizen
Non-US Citizen
Weapon versus No Weapon
15%
85%
No Weapon
Weapon
1-32
IAFF Always on the Front Line

Slide 1-32

Methamphetamine Facts

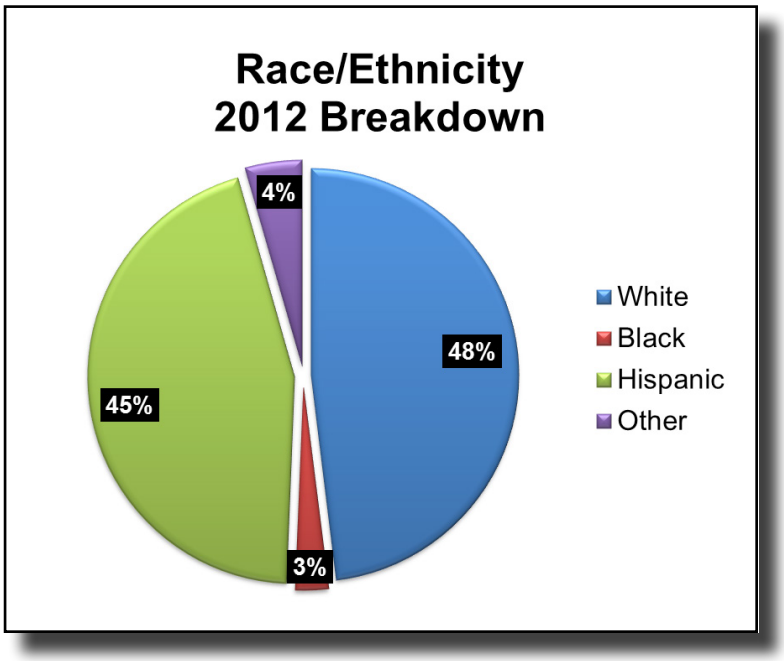
Who Uses Methamphetamine?

According to the National Institute of Justice's report, *Methamphetamine Use: Lessons Learned,* methamphetamine users are men and women of all ages and levels of socioeconomic status.

In fiscal year 2012, the number of people sentenced for methamphetamine related charges in U.S. federal courts totaled 4,935.

- 48 percent were Caucasian.
- 80 percent were males.
- 68 percent were U.S. citizens.
- 15 percent had a weapon.

Figure 1-7a.



These numbers, however, may not accurately reflect the majority of methamphetamine users.

Figure 1-7b.

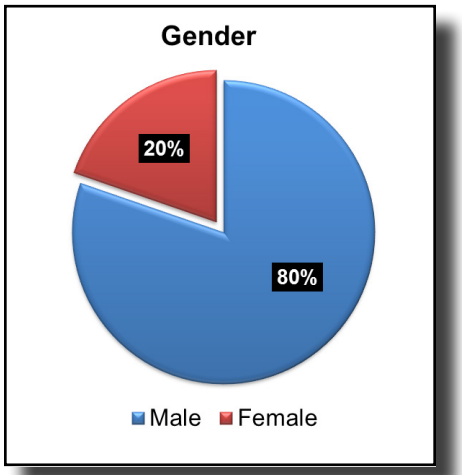


Figure 1-7c.

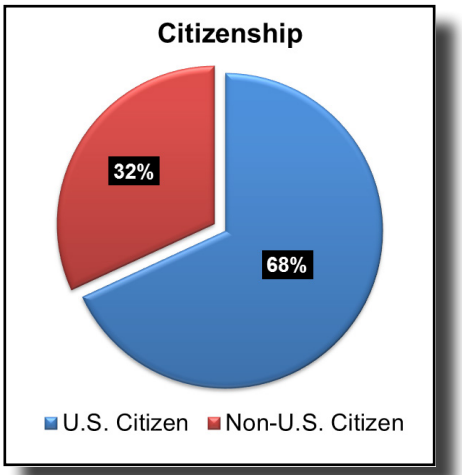
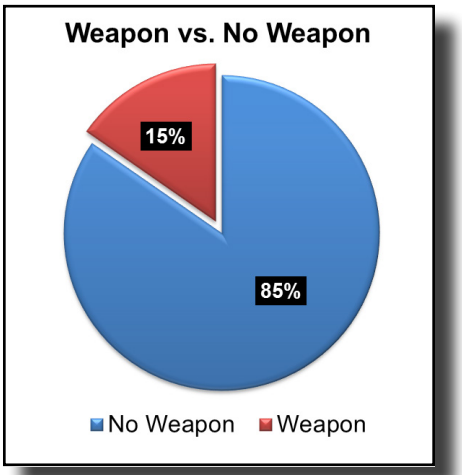
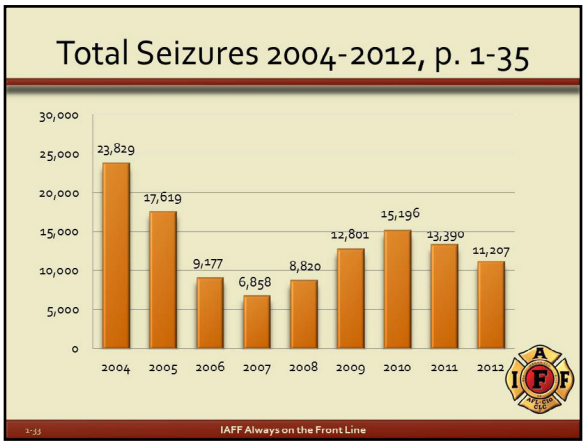


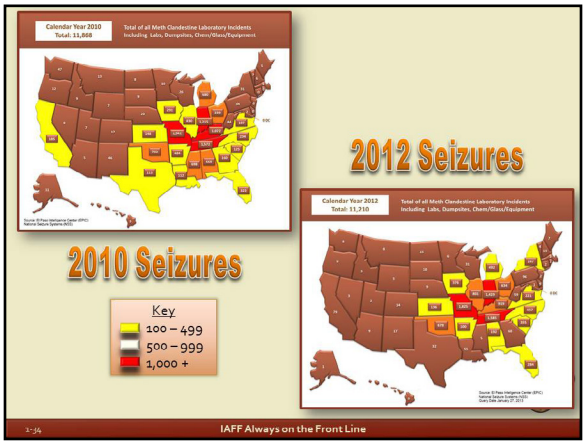
Figure 1-7d.



This data was produced with the U.S. Sentencing Commission's Interactive Sourcebook (isb.ussc.gov) using the Commission's fiscal year 2012 Datafile, USSCFY2012.



Slide 1-33

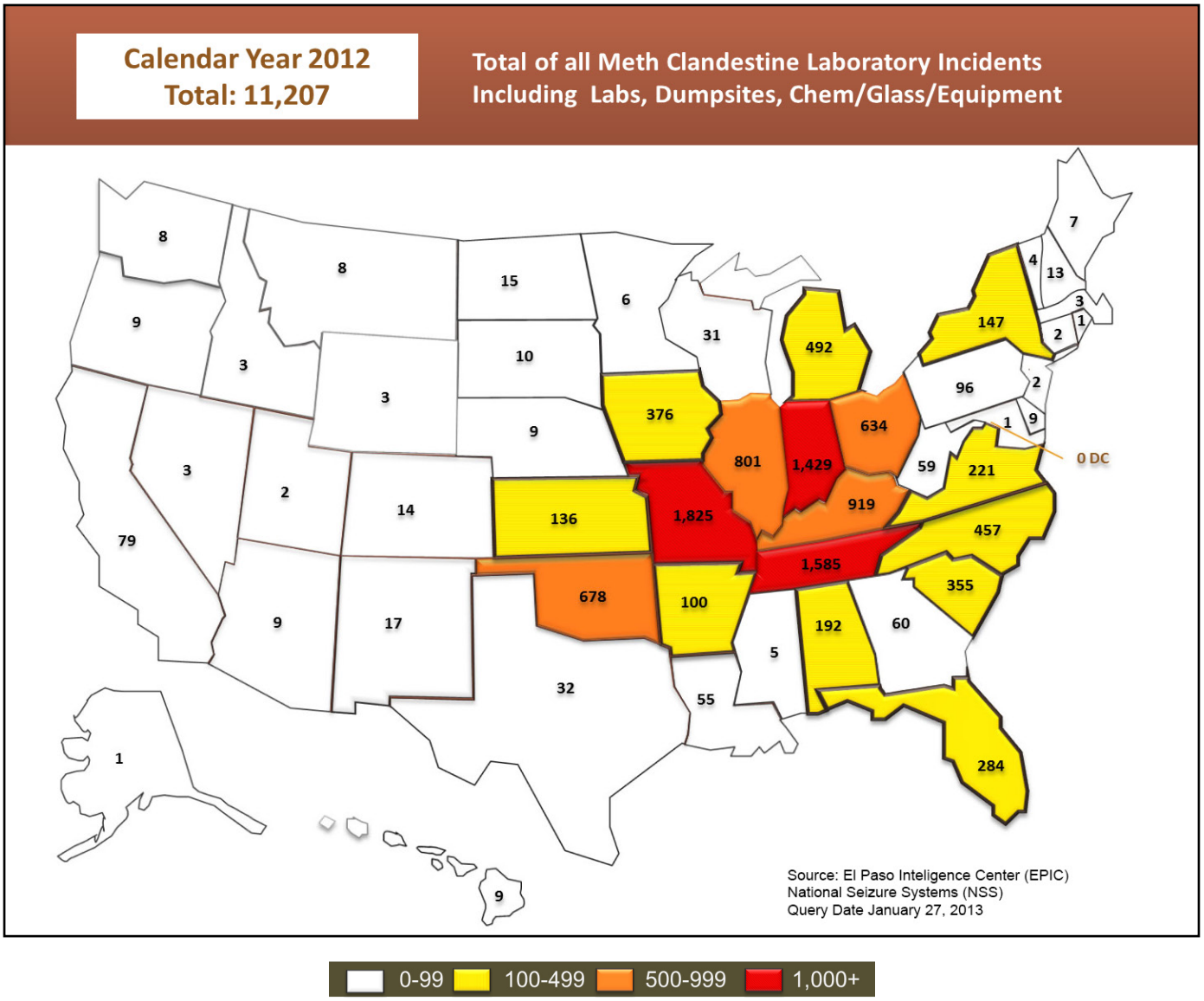


Slide 1-34

Where Are Illicit Drug Labs Found in the U.S.?

Although they originated in California, illicit drug labs are now found in every state. The map below (Figure 1-8) shows how many illicit methamphetamine labs were seized in each state by the U.S. Drug Enforcement Agency (DEA) during the 2012 calendar year. *Appendix C, U.S. Drug Enforcement Administration Methamphetamine Lab Seizures by State*, provides information on methamphetamine lab seizures by state between 2004 and 2012.

Figure 1-8. Total Methamphetamine Clandestine Laboratory Incidents for 2012



Slide 1-35

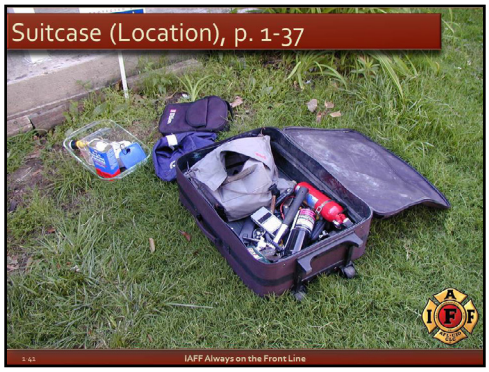
Slide 1-36

Slide 1-37

Slide 1-38

Slide 1-39

Slide 1-40



Slide 1-41

Common Locations for Illicit Drug Labs

Illicit drug and WMD labs can be anywhere and everywhere. Rural areas are popular because they are sparsely populated, so neighbors are less likely to report suspicious odors. Also, there are fewer law enforcement personnel per square mile compared to major cities. Agricultural areas are especially popular because anhydrous ammonia, a fertilizer and main ingredient for methamphetamine, can be easily stolen from farms. As methamphetamine becomes more popular, more illicit drug labs are found in both rural and urban areas. All illicit drug labs are hazardous.

Illicit drug labs have been found in suitcases, vehicles, residential and commercial buildings. Some specific locations include:

- Residences
  - Houses
  - Apartments
  - Mobile homes
- Mini-storage units
- Hotel and motel rooms
- Remote locations
  - Farms
  - Campgrounds (tents, trailers)
  - State and national parks and forests
  - Ice fishing houses
- School laboratories
- Business storerooms, mixed legal/illegal use facilities
- High schools and laboratories
- Abandoned buildings
- Transportation
  - Vehicles
  - Trailers
    - Mobile homes
  - Cargo containers
  - Boats

Some of these locations are described using real-life examples on the pages that follow.

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Common Locations for Illicit Drug Labs

Independent Reading

Houses

Missouri – In February 2005, one man was injured when a propane tank filled with ammonium nitrate exploded inside a house. Police reported that three men were heating about five pounds of the highly explosive ammonium nitrate fertilizer in an effort to convert it to anhydrous ammonia. The men tried to speed up the chemical process by heating the ammonium nitrate over an electric stove which caused an extremely violent, powerful and destructive explosion that blew out the home's windows and sent shards of the propane container ripping through the home's walls and roof. The blast left the house in ruins. Debris, including broken glass and pieces of the building's walls and roof, was scattered up to 30 feet from the building. (Hathaway, 2005)

Florida – On July 6, 2013, authorities discovered a methamphetamine lab in the house of two suspects in Clermont, Florida. They discovered the lab while following a trail of Arnold's blood after authorities responded to an explosion. The homeowner, who had numerous cuts from flying glass, told police the fire started by an air conditioner and that his cuts came from breaking a window to fight the fire. The suspects were arrested and the four children residing in the home were placed in their grandmother's custody. (WESH.com, 2013)

California – On March 2, 2000, Dr. Larry Ford of Irvine, California committed suicide after a botched assassination attempt on his business partner. Suspecting Ford was behind the shooting, investigators dug up his yard and found a cache of military-grade weapons and explosives, according to court documents in California. In his refrigerator, investigators found jars of germs that cause typhoid and cholera. Authorities looked into ties with an apartheid South Africa chemical and biological weapons program.

Apartments

South Carolina – In May 2012, three occupants (4, 19, 69) of the Pine Harbour Apartment Complex in Goose Creek, SC were found dead following a fire and explosion due to a methamphetamine lab in one of the apartments. Those killed included suspect's daughter and cousin, as well as a neighbor in an adjacent apartment. A woman, who jumped out of the window to escape, was also injured. Investigators found chemicals and other materials in the rubble. The scene was treated as a crime scene and fire fighters were careful in order to protect the evidence. The Red Cross reported that sixteen units were destroyed, affecting a total of 46 people. The suspects pleaded guilty to two federal charges. Two others were indicted in 2013. (Live 5 News Staff, May 2012) (Caula, April 2013)

Hotel and Motel Rooms

Florida – In June 2013, police raided a methamphetamine lab in a hotel room. Responding to a tip, police found an active lab beneath the bathroom sink as well as 1.6 grams of marijuana and 0.3 grams of meth in the pockets of the suspect. Investigators seized an additional 86 grams from the meth lab. Eight children, ranging in age from 1-month to 8-years, were also found in the room, though they were reportedly at the hotel's pool with their mothers at the time the suspect was cooking meth. Some of the children were returned to their mother. The suspect took sole responsibility for the operation. The rooms adjacent to the room in question were evacuated until the area was deemed safe by investigators. (Roberts and WFTS staff, June 25, 2013)

NOTE: The U.S. DEA estimates that children are present at 20% of illicit methamphetamine laboratories.

Abandoned Buildings

Massachusetts – In April 2005, narcotics agents discovered a methamphetamine lab in an abandoned barn. Agents had been looking for a suspect at a nearby abandoned house, where they noticed chemicals commonly used to make methamphetamine. When they searched the barn, the agents discovered an active meth lab. (The Associated Press, April 16, 2005)

Mini-Storage Units

Florida – In May 2013, police discovered a methamphetamine lab in a self-storage facility after someone reported a man acting suspicious. Authorities found enough materials to make meth for personal use. The county fire fighters and special hazards and operations team were called to the scene due to the hazardous materials. In addition to the meth lab it appeared that the suspect and another individual were living in the storage unit. (Rowland, May 15, 2013)

NOTE: Although such storage units may be small, you could be faced with large amounts of chemicals. Three or four 55-gallon drums may contain 800 – 1,000 pounds of chemicals.

Cars

Florida – In July 2011, during a routine traffic stop for speeding, authorities discovered an active methamphetamine lab. All the ingredients required to produce the drug were found, along with three people actively making it. The sheriff's captain noted that a mobile meth lab was not something they see every day. (Central Florida News, 2011)

Washington – In December 1999, Ahmed Ressam, a 34-year-old Algerian, was arrested at Port Angeles, Washington, attempting to enter the United States with components used to manufacture improvised explosive devices. He subsequently admitted that he planned to bomb Los Angeles International Airport on the eve of the Millennium 2000 celebrations.

Mobile Homes

Mississippi – In April 2005, three men were severely burned when the mobile home they used to make methamphetamine exploded. The men were using propane to make the drug when the fumes ignited, causing the explosion. Police first saw the badly burned men running on Main Street at 12:30 A.M. and alerted officials at the Jackson County Sheriff's Department. One of the injured men allegedly told police they had been making methamphetamine when the explosion occurred. Agents called a hazardous materials team to clean up the mobile lab. (The Associated Press, April 1, 2005)

Florida – In January 2005, an Ocala man was charged with illegal possession of ricin, a deadly toxin that can be used for bioterrorism. A search of suspect's mobile home computer turned up terrorism-related materials, including a common Internet recipe for producing ricin, as well as the Unabomber Manifesto and documents titled the Encyclopedia of Terror, Anarchy Cookbook for Early 2000 and The Arsonist Proudly Presents Assorted Ways to Kill Someone. The former waiter also had several weapons, including an AK-47 and an Uzi. (CNN, 2005)

Campers

Minnesota – In June 2004, two men, ages 31 and 41, were manufacturing methamphetamine in a camper when a flash fire and explosion occurred. Chemicals being used included acetone, propane, solvent not otherwise specified (NOS) and other meth chemicals. Both men received thermal burns and transported themselves to the hospital without assistance from emergency medical services. The older man was treated at the hospital and admitted with burns on his hands, arms and knees. The 31 year old man received burns to 80% of his body and died at the hospital. The fire had burned out by the time authorities responded. (MMWR, 2005)

Tents

Oklahoma – In August 2011, two men were arrested and taken to jail after police found them making meth in their backyard tent. Police responded to a call regarding a possible methamphetamine lab at the residence. Within the tent they found the required materials for producing meth, as well as a used “shake and bake” lab. Also found were two loaded guns in the tent. Two children were taken into custody due to the appalling living conditions inside the home. (Scripps Media, Inc., 2011)

Ice Fishing Houses

North Dakota – In February 2005, authorities reported seeing a trend in the use of ice-fishing houses as illicit methamphetamine labs. Attorney General Wayne Stenehjem stated, “It’s been going on for a couple of years now. We’re concerned about it because it’s a double hazard. As soon as (authorities) come up on one of the ice houses, evidence is dumped down the hole and those toxic chemicals go into the lake.” Previously, meth labs in North Dakota primarily were found in rented and abandoned farm houses. But as authorities began cracking down on those structures, production moved to less detectable areas, like the ice-fishing houses. The remoteness, ventilation and privacy of the ice-fishing houses make them harder to detect. Law enforcement officers now patrol lakes with ice-fishing houses more often. (MacPherson, 2005)

Boats

Louisiana – In August 2013, a couple was arrested when authorities discovered the necessary materials to produce methamphetamine on their boat. Prior to boarding the boat they also found waste products from used "shake and bake" labs. Caustic precursor chemicals, including a gallon of acetone, a gallon of hydrochloric acid and 24 ounces of sulfuric acid were found on the boat. Three children, a 5-year-old and 9-year-old twins, were found on or around the boat when investigators arrived. The authorities also determined that the couple was operating another "shake and bake" lab at their residences. (Hunter, August 2013)

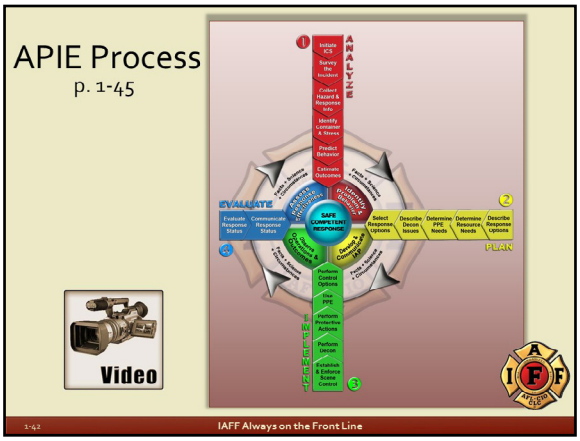
NOTE: Boat labs allow for quick and easy waste disposal, which pollutes waterways.

State and National Parks and Forests

Washington – In May 2005, the State Department of Ecology reported discovering more than 400 illicit drug labs and dumpsites on government owned parks and campgrounds, within five months. These parks and campgrounds are used because their isolation makes it less likely that a methamphetamine cook will be caught and arrested. The presence of methamphetamine chemicals endangers park service employees and visitors, especially when corroded propane tanks release ammonia or hydrochloric acid. The many flammable chemicals also raise the risk of forest fires. (U.S. Fed News, 2005)

Post Office

Alabama – One evening in December 2012, while checking his mail in Chunchula, a state constable discovered a methamphetamine lab inside the post office, when a strong odor was detected. The suspects were found crouched down behind the table where customers prepare mail. When approached by the constable, one suspect fled on foot, while the other, a fifteen-year-old, was detained at the scene. The second suspect was arrested a few days later. Authorities hope to file federal charges, as this crime was conducted on federal property. (Douglas, 2012)


APIE Process
p. 1-45
Video
ANALYZE
PLAN
IMPLEMENT
EVALUATE
SAFE COMPETENT RESPONSE
1-42
IAFF Always on the Front Line

Slide 1-42

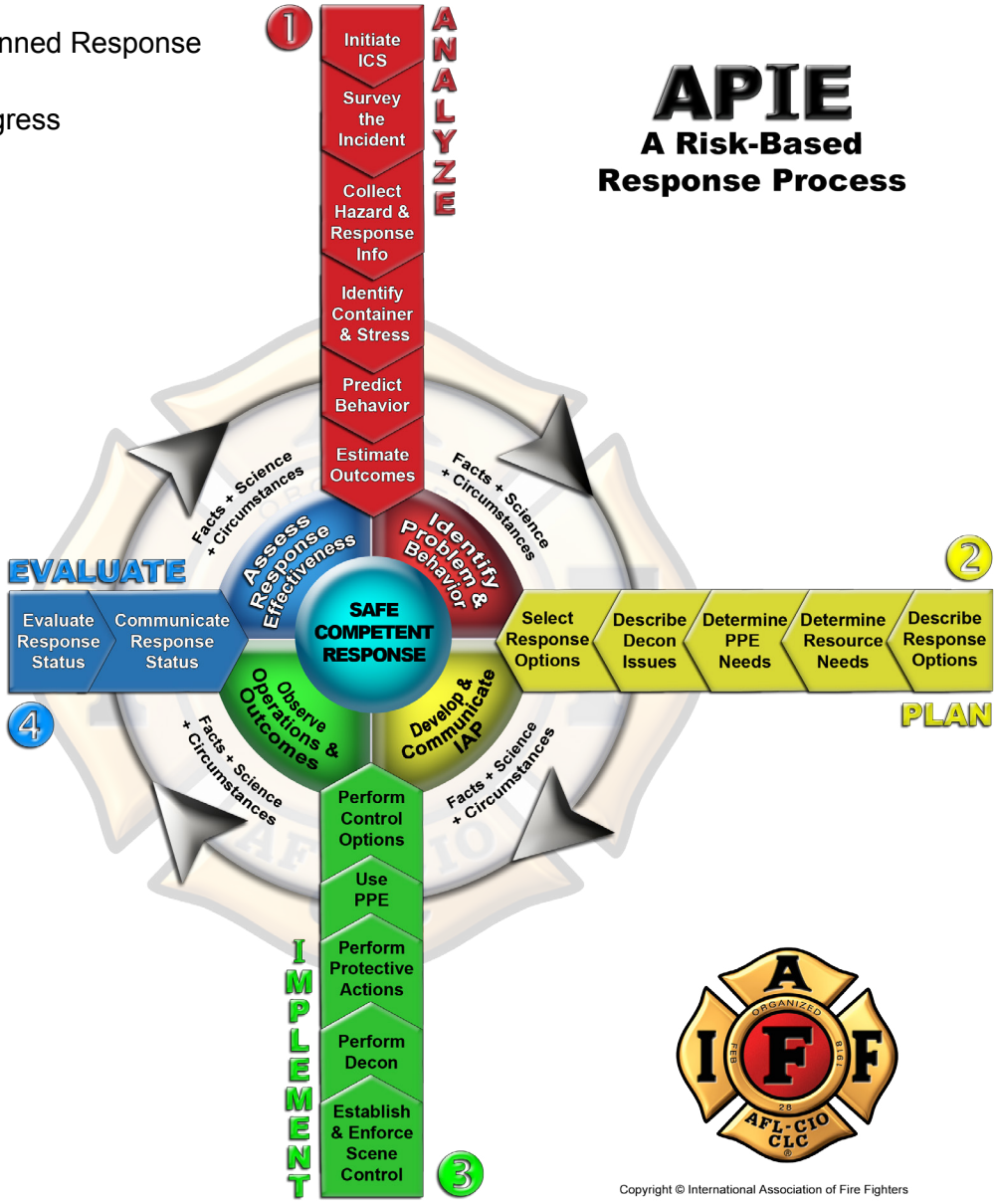
APIE: A Risk-Based Response Process

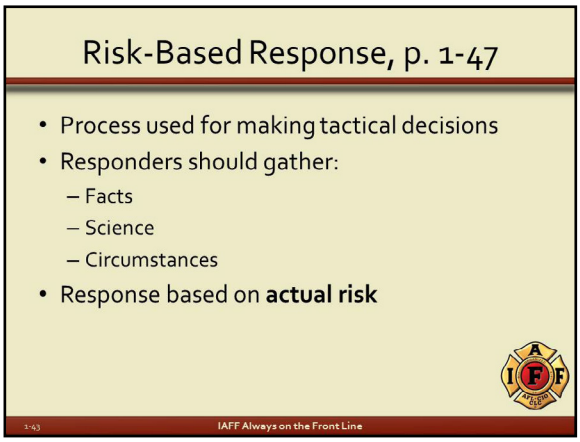
All actions taken at the scene of an illicit drug lab must be deliberate and planned with safety in mind. Every effort must be made to obtain and evaluate all available information concerning the incident before any actions are taken.

Always follow the basic APIE response principle:

- **Analyze** the Incident
- **Plan** the Response
- **Implement** the Planned Response
- **Evaluate** Your Progress

Figure 1-9.




Risk-Based Response, p. 1-47
• Process used for making tactical decisions
• Responders should gather:
– Facts
– Science
– Circumstances
• Response based on **actual risk**
1-43
IAFF Always on the Front Line

Slide 1-43

Risk-Based Response

It is a paradigm, a way of looking at something. Risk-based response has evolved over the past decade as the way to a safe and competent response. A risk-based response drives your response by understanding the hazards and your mission. It allows the responder to select the appropriate personal protective equipment, detection devices and control techniques by gathering the facts, science and circumstances of the incident. Responders center their responses based on the ***actual risk(s)***. This is a more practical approach than the older paradigm of responding model that is based on “worst case what ifs” and “analysis paralysis.”

The gathering of facts, science and circumstances includes the following examples for an illicit lab response:

Facts

- Detection device readings:
  - Lower exposure limit (LEL)
  - pH levels
  - Infrared (IR) temperature gun readings

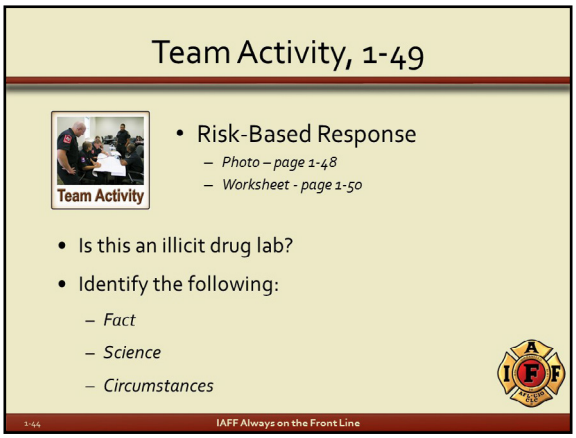
Science

- Chemical and physical properties of chemicals involved

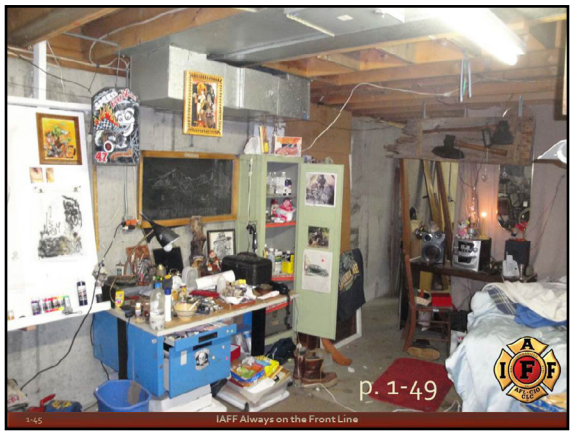
Circumstances

- Rescue of occupants
- Active lab versus boxed lab or dumpsite
- Mom and pop lab vs super lab
- Illegal drug lab versus chemical or biological lab
- Location of the lab

Figure 1-10.



Slide 1-44



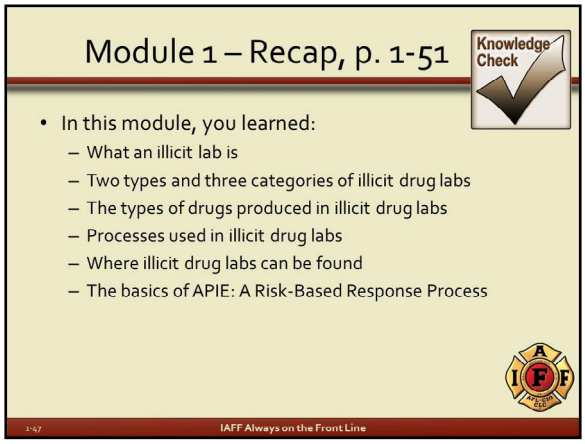
Slides 1-45 & 1-46

Team Activity: Risk-Based Response

As a team, carefully study Figure 1-10 on page 1-48 and determine what ***FACTS, SCIENCE and CIRCUMSTANCES*** *can be identified. Complete the questions below.*

1. **Is this an illicit lab? How can you tell?**

2. **Identify the following:**
   - ***Facts***
   - ***Science***
   - ***Circumstances***


Module 1 – Recap, p. 1-51
Knowledge Check
• In this module, you learned:
– What an illicit lab is
– Two types and three categories of illicit drug labs
– The types of drugs produced in illicit drug labs
– Processes used in illicit drug labs
– Where illicit drug labs can be found
– The basics of APIE: A Risk-Based Response Process
1-47
IAFF Always on the Front Line

Slide 1-47

Recap

In this module you learned:

- What an illicit lab is
- Two types and three categories of illicit labs
- The types of drugs produced in illicit labs
- Processes used in illicit labs
- Where illicit drug labs can be found
- The basics of APIE: A Risk-Based Response Process

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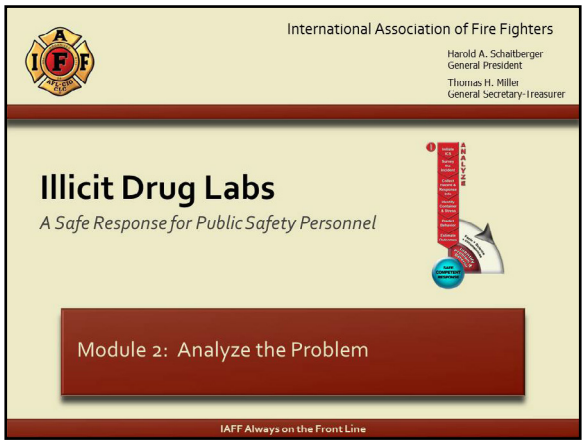
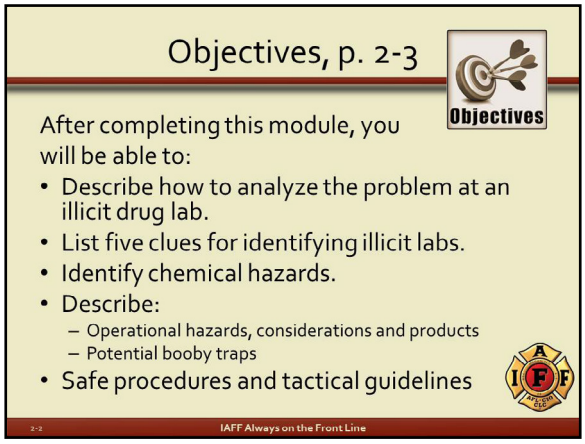
Module 2 - Analyze the Problem

Section	Time (Min)	Page
Module 2 - Learning Objectives	2	2-3
Utilizing the APIE Process - Analyze the Problem	9	2-5
Case Study: Response to a Chemical Odor	10	2-7
Clues to Help You Recognize Possible Drug Labs	5	2-9
Chemical Hazards at Illicit Drug Labs	5	2-11
Hazmat Hazards Present at Illicit Drug Labs	45	2-13
Chemical Incompatibility	2	2-15
Partner Activity: Hazard Identification	5	2-17
Booby Traps	5	2-19
Other Hazards	5	2-21
Safety Procedures & Tactical Guidelines	5	2-23
Responder Actions That May Be Hazardous	5	2-25
Safe Actions for Responders at Illicit Labs	5	2-27
Case Study: Mobile Lab	10	2-29
Recap	2	2-33
Total Estimated Time	**2 hours**	



Slide 2-1



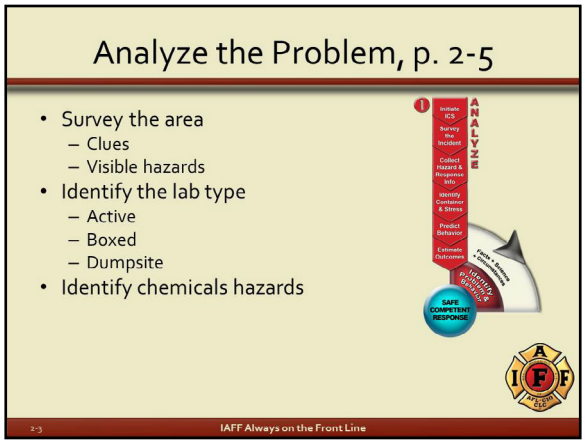
Slide 2-2

Module 2 - Learning Objectives

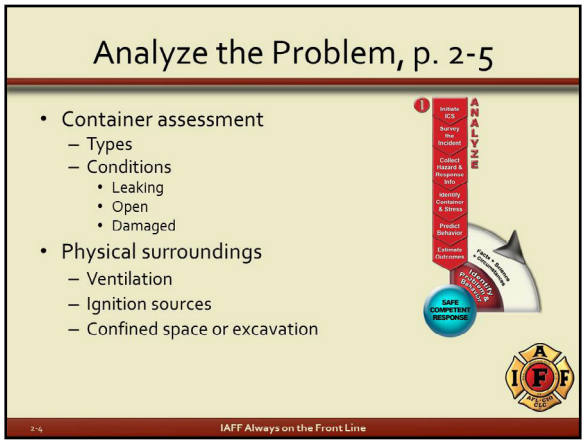
First responders are exposed to numerous chemical and physical hazards whenever they are operating at illicit drug laboratories and illegal waste dumpsites. It important for first responders to be able to determine whether or not they are dealing with an illicit lab quickly. This module will examine how to analyze the scene and safe operational aspects at illicit lab sites.

After completing this module, you will be able to:

- Describe how to analyze the problem at an illicit drug lab.
- List at least five clues for identifying illicit drug labs.
- Identify chemical hazards when responding to an illicit drub lab incident.
- Describe operational hazards, considerations and products involved in the illicit process.
- Describe potential booby traps encountered by response personnel.
- Describe safe procedures and tactical guidelines.



Slide 2-3



Slide 2-4

Utilizing the APIE Process

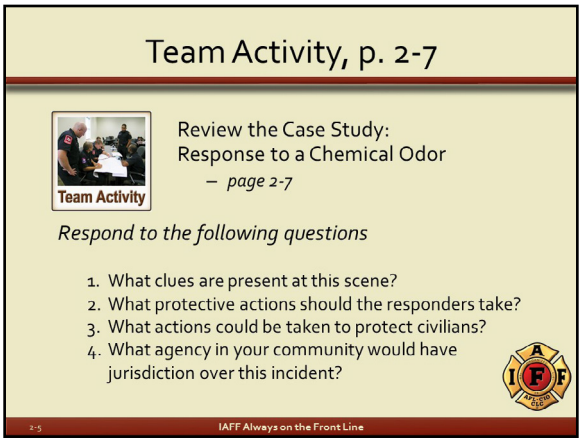
When responding to illicit drug labs, always follow the basic APIE response principle. The first step is to analyze the problem.

Analyze the Problem

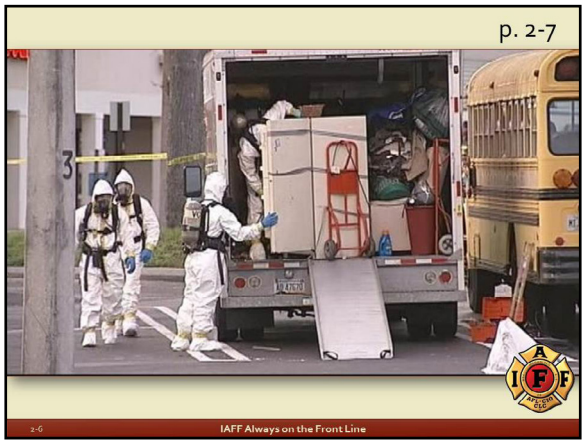
These actions should only be accomplished after law enforcement agencies have removed all suspects, weapons and booby traps.

- Survey the incident
  - What clues are present?
  - What hazards can be seen?
- Identify the lab type
  - Is it a Mom & Pop or Super lab?
  - Is it an active lab?
  - Boxed lab?
  - Dumpsite?
- Identify chemical hazards
- Container assessment
  - Types?
  - Locations?
  - Conditions? (leaking, open, damaged)
- Physical surroundings assessment
  - Ventilation
  - Ignition sources
  - Confined space or excavation

Figure 2-1.



Slide 2-5



Slide 2-6

Case Study: Response to a Chemical Odor

At 10:30 a.m., an engine company is called to respond to a report of an unidentified chemical odor in a parking lot near a school. Law enforcement is on scene and you meet the store manager who called in the report. The store manager reports having smelled chemicals off and on the past few evenings, but tonight it is much stronger and seems to emitting from a U-haul truck.

As your company and law enforcement get closer to the U-haul truck you detect the smells of ether and ammonia. The odor is definitely coming from inside the truck.

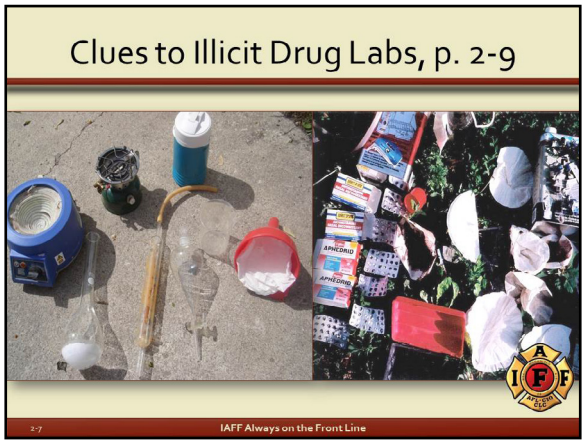
Work with your team to come up with answers to the questions.

What clues are present at this scene?

What protective actions should the responders take?

What actions could be taken to protect civilians?

What agency in your community would have jurisdiction over this incident?



Slide 2-7

Slide 2-8

Clues to Help You Recognize Possible Drug Labs

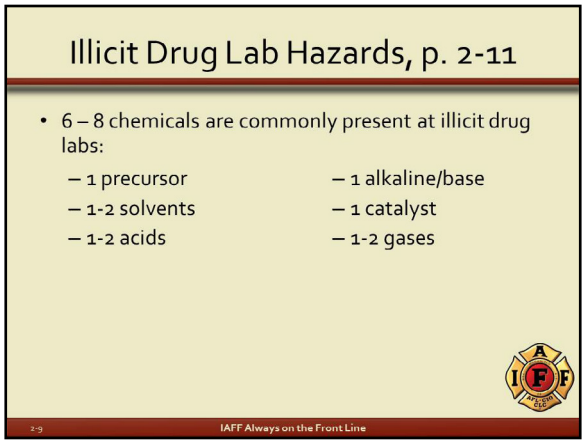
Fire fighters discover many illicit drug labs when responding to fires, explosions or calls about strange odors. Up to 30% of labs are discovered by fire fighters responding to fires and explosions (Holton 2001). At first you may not realize you are in a drug lab, because this information will likely not be provided in the dispatch. Be alert to the following clues that indicate a possible illicit drug lab:

- Blacked out or covered windows
- Stained soil
- Dead trees
- Burn pits
- Unusual ventilation and drainage systems
- Odors that are pungent, sweet, bitter or leave a metallic taste in your mouth, such as anhydrous ammonia, acetone and ether
- Commonly used chemicals, such as camp stove fuel, starting fluid, Red Devil® lye, HEET®
- Punctured aerosol cans
- Propane tanks, especially with blue, corroded fittings
- Multiple containers of over-the-counter cold medicine
- Stained coffee filters, sheets or pieces of cloth
- Glassware, such as mason jars
- Household containers (e.g., 2-liter soda bottles) with plastic tubing attached
- Plastic/rubber tubing
- Heat sources, such as hot plates, electric skillets or slow cookers
- Blenders/coffee grinders
- Hand scales
- Pill presses
- Fertilizer stakes
- Cold packs
- Lithium batteries

Be aware that drug lab fires can spread faster and burn with more intensity than most structural fires. The color of the flames may appear unusually bright or dark orange, or the flames may be of several different colors. Being attuned to clues will help you to know what you're dealing with and how to protect yourself.

Figure 2-2

From left to right: pill press machine, batteries, starting fluid and acetone


Illicit Drug Lab Hazards, p. 2-11
• 6 – 8 chemicals are commonly present at illicit drug labs:
– 1 precursor
– 1-2 solvents
– 1-2 acids
– 1 alkaline/base
– 1 catalyst
– 1-2 gases
2-9
IAFF Always on the Front Line

Slide 2-9

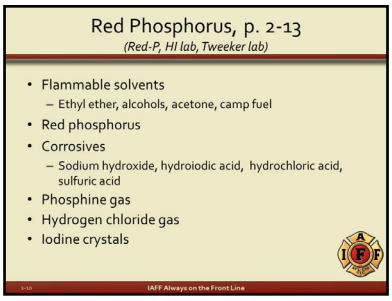
Chemical Hazards at Illicit Drug Labs

Illicit drug labs commonly have 6 – 8 chemicals per lab:

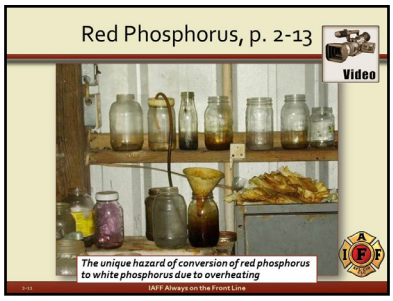
- 1 precursor
- 1 – 2 solvents
- 1 – 2 acids
- 1 alkaline/base
- 1 catalyst
- 1 – 2 gases

Labs typically will have larger volumes of solvents and corrosives, and generally have smaller volumes of precursors and catalysts. There is a wide variety of chemicals that can be used to manufacture the various illegal drugs, for example, around thirty-four different chemicals are associated with the manufacturing of meth. Solvent substitutions are the most common source of additional chemicals associated with illicit labs.

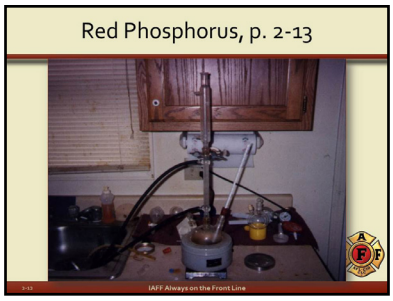
Meth labs currently account for more than 95% of illicit drug labs. Red phosphorous and anhydrous ammonia meth labs are most frequently encountered. All illicit labs share the common hazards of flammability, toxicity and physical hazards, but each lab type has unique hazards based on the method. Some characteristics of these labs and others are shown in the table on page 2-13.



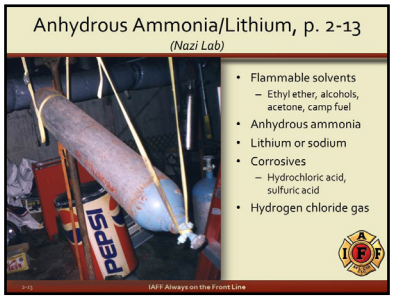
Slide 2-10



Slide 2-11

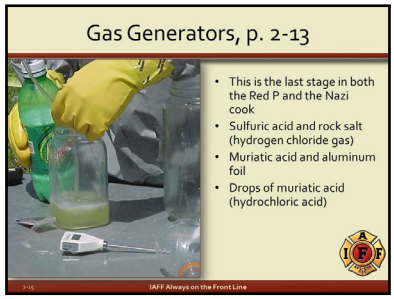


Slide 2-12



Slide 2-13

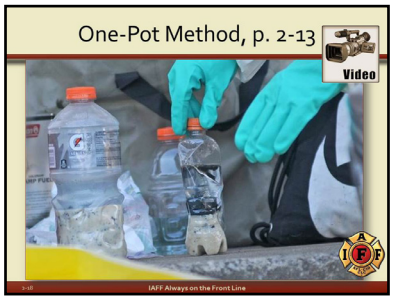
Slide 2-14



Slide 2-15

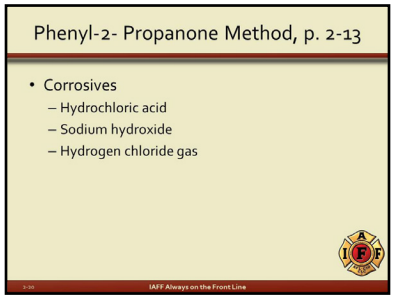
Slide 2-16

Slide 2-17



Slide 2-18

Slide 2-19



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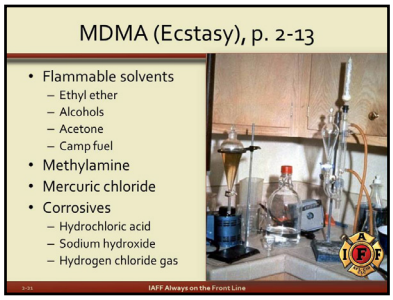
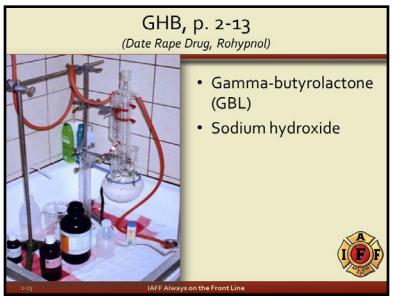


Slide 2-21

Hazmat Hazards Present at Illicit Drug Labs

Manufacturing Method	Hazards
Red Phosphorous (Red-P, HI lab, Tweeker lab)	• Flammable solvents – Ethyl ether, alcohols, acetone, camp stove fuel (has light blue tint) • Red phosphorus (friction sensitive) • Corrosives – Sodium hydroxide (lye), hydriodic acid, hydrochloric acid, sulfuric acid • Phosphine gas (large explosive limit) • Hydrogen chloride gas • Iodine crystals NOTE: There is a unique hazard of conversion of red phosphorous to white phosphorous due to overheating.
Anhydrous Ammonia/ Lithium (Nazi Lab)	• Flammable solvents – Ethyl ether, alcohols, acetone, camp stove fuel • Anhydrous ammonia (toxic, corrosive) • Lithium or sodium • Corrosives – Hydrochloric acid, sulfuric acid • Hydrogen chloride gas
One-Pot Method (Shake and Bake)	• Ammonium nitrate/sulfate replaces anhydrous ammonia (sources: cold backs, tree/shrub fertilizer stakes). • Sodium/Potassium hydroxide • Greater risk of fire hazards with container rupture. • The unique hazard with this method is the violent rupture of the container and the physical hazards associated with this event.
Phenyl-2-Propanone Method (Biker method, foil method, P-2-P method)	• Flammable solvents – Ethyl ether, alcohols, acetone, camp stove fuel • Methylamine • Mercuric chloride
MDMA (Ecstasy)	• Flammable solvents – Ethyl ether, alcohols, acetone, camp stove fuel • Methylamine • Mercuric chloride • Corrosives – Hydrochloric acid, sodium hydroxide, hydrogen chloride gas
GHB (Date Rape Drug, Rohypnol)	• Gamma-Butyrolactone • Sodium Hydroxide

Slide 2-22



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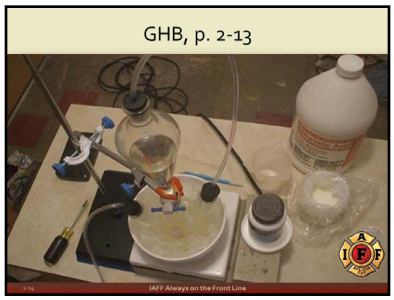

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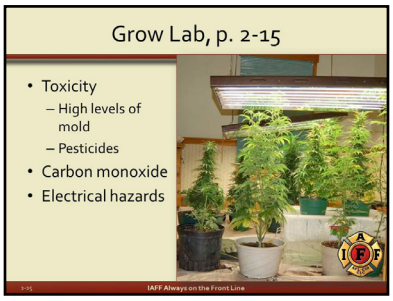
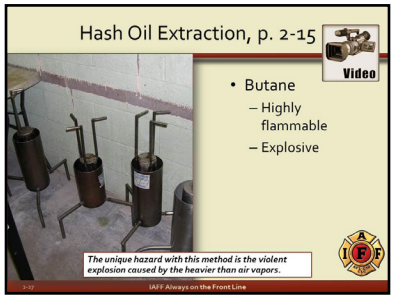


Slide 2-25

Slide 2-26



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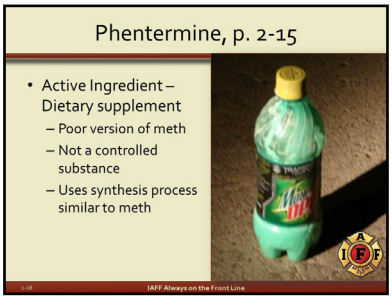

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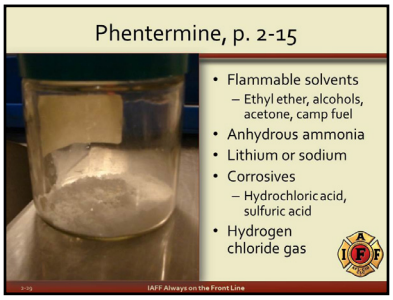

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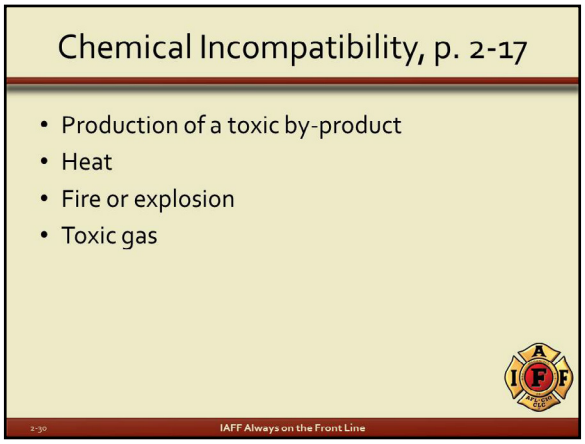


Slide 2-30

Manufacturing Method	Hazards
Grow Lab	• High levels of mold (toxic) • Carbon monoxide • Electrical hazards • Pesticides (toxic) • Physical hazards (poor construction, steel enforced buildings, poor ventilation, locked exits, labyrinths and booby traps)
Hash Oil Extraction (Butane)	• Flammable solvent - butane • Nitrogen dioxide (toxic) • The unique hazard of the extraction of hash oil is the violent explosions from the improper handling of the highly combustible butane.
Phentermine	• Flammable solvents – Ethyl ether, alcohols, acetone, camp stove fuel • Anhydrous ammonia (toxic, corrosive) • Lithium or sodium • Corrosives – Hydrochloric acid, sulfuric acid • Hydrogen chloride gas

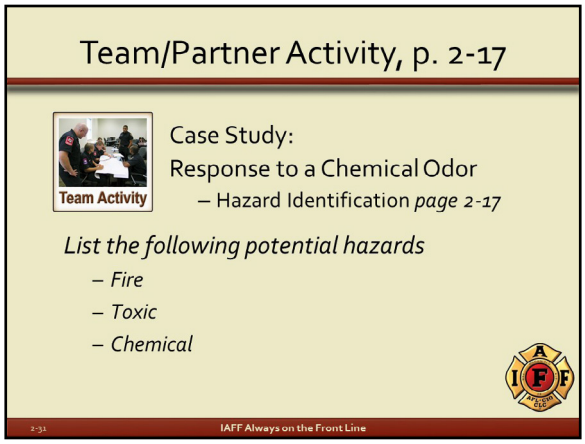
Appendix D: Butane Hash Oil Extractions (BHO) and Grow Operations provides additional information on types of harm for legal and illegal grow labs and hash oil extraction.

Chemical Incompatibility

Incompatible chemicals react upon contact. Many mixtures of incompatible chemicals react violently. It is important to identify incompatible chemicals. Understanding the consequences of an unplanned interaction is the basis for safe chemical handling at illicit lab incidents.

Reactions of two or more chemicals, water or air may cause the following:

- Production of a toxic by-product
- Heat
- Fire or explosion
- Toxic gas


Team/Partner Activity, p. 2-17
Team Activity
Case Study:
Response to a Chemical Odor
– Hazard Identification page 2-17
List the following potential hazards
– Fire
– Toxic
– Chemical
2-31
IAFF Always on the Front Line

Slide 2-31

Partner Activity: Hazard Identification

In the *Response to a Chemical Odor* case study investigation of the U-haul on page 2-7, it was determined that an active lab is present. Law enforcement evacuated the people from the area and determined the lab used the anhydrous ammonia method to manufacture meth.

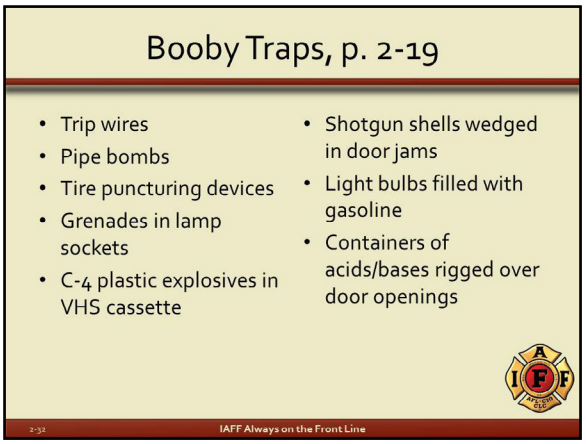
With a team partner, list the following potential hazards that would likely be present in this lab.

Fire Hazards:

Toxic Hazards:

Chemical Hazards:

Other Safety Hazards:



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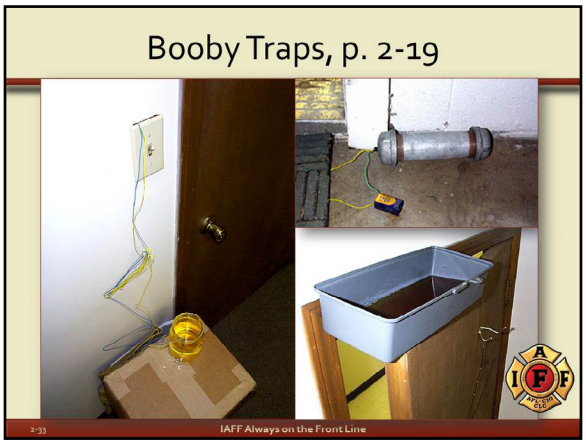
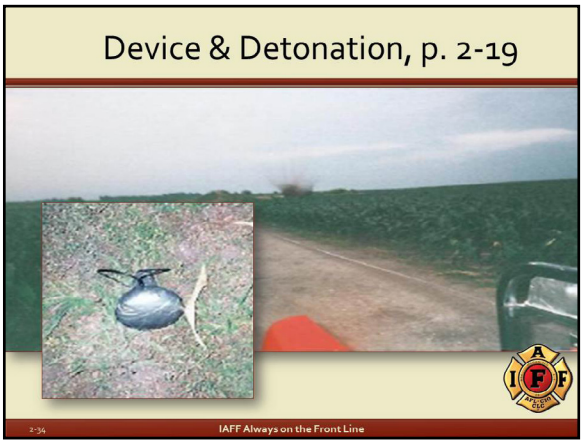


Slide 2-33



Slide 2-34

Figure 2-3, on the facing page starting on the left moving clockwise, electrical wires in conducting liquid, acid or base liquid in a tub over the top of a door, pressure device under a door mat.

Booby Traps

Although booby traps are found in only a small percentage of seized illicit drug labs, responders must always consider the potential for their existence. Booby traps are designed to injure, kill or warn of approach to allow suspects to escape. Drugs made in these labs are valuable, and the producers may try to harm responders who approach or enter labs. Fire, explosion, spike traps, chemical and other physical hazards such as holes in floors that have been covered by rugs are examples of booby traps that have been encountered by responders. Other examples include:

- Trip wires
- Pipe bombs
- Tire puncturing devices
- Grenades in lamp sockets
- C-4 plastic explosives in VHS cassette
- Shotgun shells wedged in door jams
- Light bulbs filled with gasoline or black powder
- Containers of acids/bases rigged over door openings

Never touch or pick up anything in an illicit lab!

Some booby traps may be completely hidden and others may be a common item in plain sight intended to stir the responder's curiosity. If you suspect an item may be a booby trap, evacuate the area and contact the appropriate agency in your jurisdiction to mitigate the potential hazard.

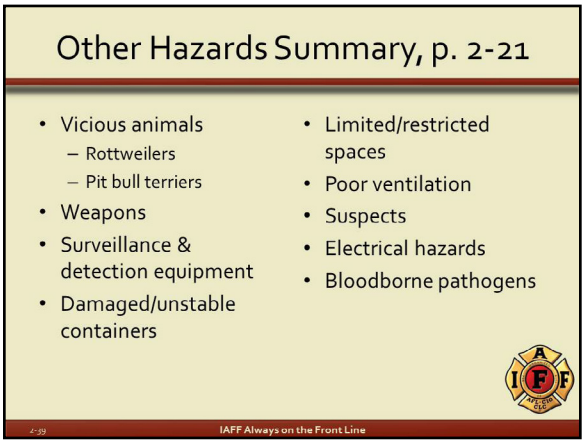
Figure 2-3

Slide 2-35

Slide 2-36

Slide 2-37

Slide 2-38



Slide 2-39

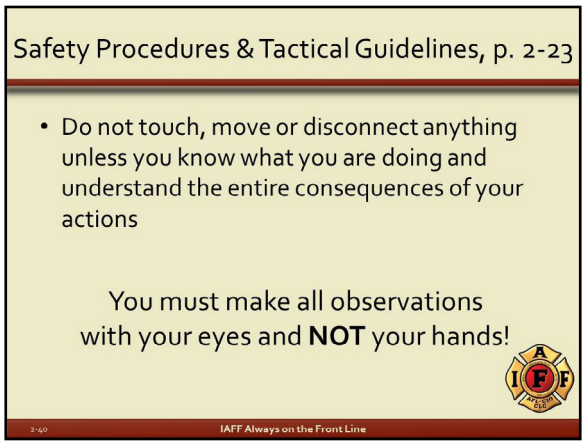
Figure 2-4, on the facing page starting top left moving clockwise, damaged containers containing NH_3, weapons and chained up pit bull.

Other Hazards

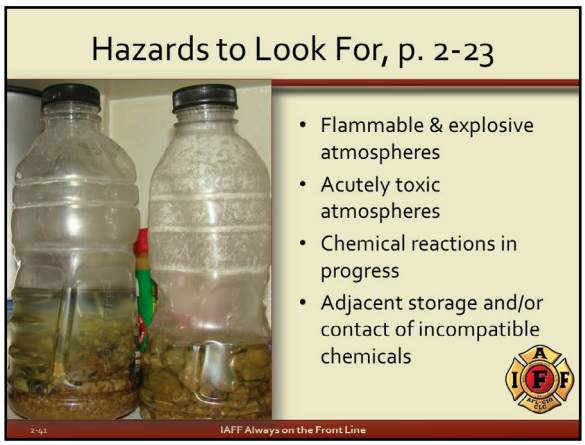
A site hazard assessment must be accomplished to identify any potential hazards to responders and/or civilians. Fire departments typically take a lead role in identifying health and safety items during an illicit drug lab response. The following are some examples of hazards that may be encountered during a response to illicit drug labs:

- Vicious animals, such as Rottweillers or Pit Bull Terriers
- Weapons
- Surveillance and detection equipment (e.g. closed circuit video cameras, monitors)
- Improper containment and damaged and/or unstable containers
    - Propane tanks are often used to store stolen anhydrous ammonia, or as mixing vessels to make hydriodic acid for the Red P method.
- Limited/restricted space or area
- Poor ventilation
- Be aware that persons at illegal drug labs may be under the influence of drugs/alcohol, or may suffer brain damage from drug use. If you see anyone upon entry, maintain eye contact and speak slowly and clearly.
- Electrical hazards
- Bloodborne pathogens

Figure 2-4



Slide 2-40



Slide 2-41

Figure 2-5, on the facing page, visible active chemical reactions taking place in the plastic bottles. You may not always be able to see if there is a chemical reaction, but by using a monitor you may be able to determine if the temperature of the bottle is higher or lower than the ambient temperature, which may indicate an active chemical reaction.

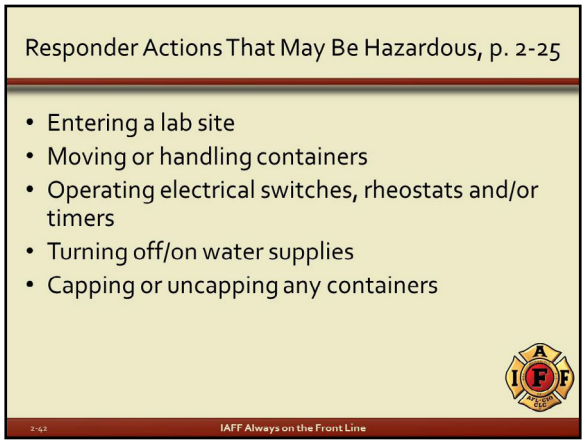
Safety Procedures & Tactical Guidelines

Do not touch, move or disconnect anything unless you have been properly trained, and understand the entire consequences of your actions!

Identify hazard priorities at the scene of the illicit lab with the safety of responders and the public as your first concern. Responders must make all observations with their eyes and **NOT** their hands. Look for:

- Suspects
- Booby traps
- Flammable and explosive atmospheres
- Acutely toxic atmospheres
- Damaged or leaking compressed gas containers
    - Do NOT attempt to identify containers' contents by sniffing, as it may contain toxic chemicals.
- Chemical reactions in progress
- Adjacent storage and/or contact of incompatible chemicals
- Unstable and/or leaking containers of solids or liquids

Figure 2-5

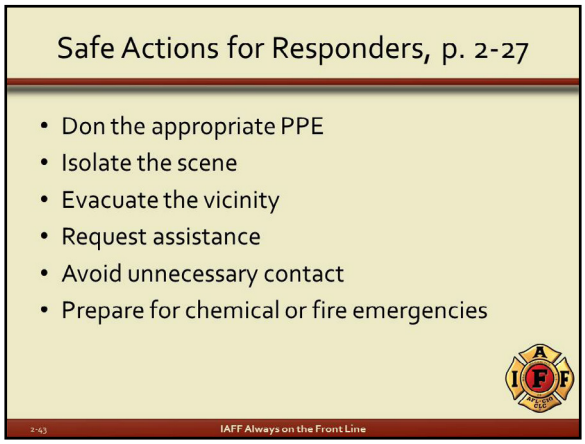

Responder Actions That May Be Hazardous, p. 2-25
• Entering a lab site
• Moving or handling containers
• Operating electrical switches, rheostats and/or timers
• Turning off/on water supplies
• Capping or uncapping any containers
2-42
IAFF Always on the Front Line

Slide 2-42

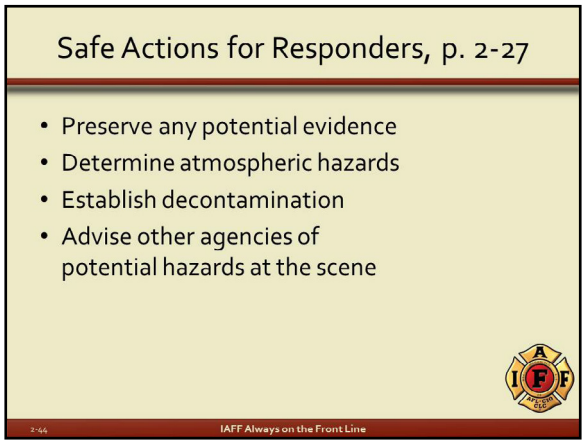
Responder Actions That May Be Hazardous

There are numerous hazards at all illicit drug labs, and responder actions that may be taken that present special challenges, and must be avoided. These include:

- Entering a lab site – just entering a lab can be dangerous
- Moving or handling containers
- Operating electrical switches, rheostats and timers
- Turning water supplies off or on
- Capping or uncapping any containers



Slide 2-43

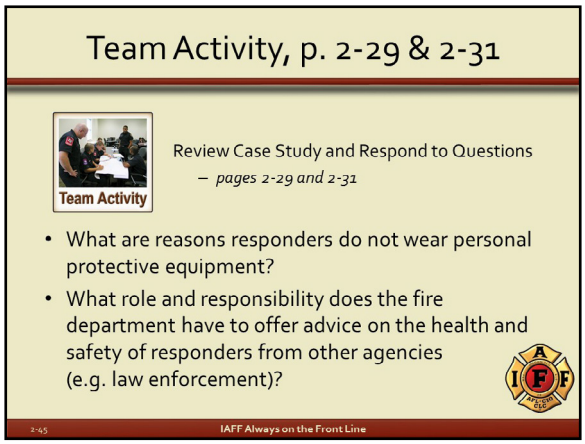


Slide 2-44

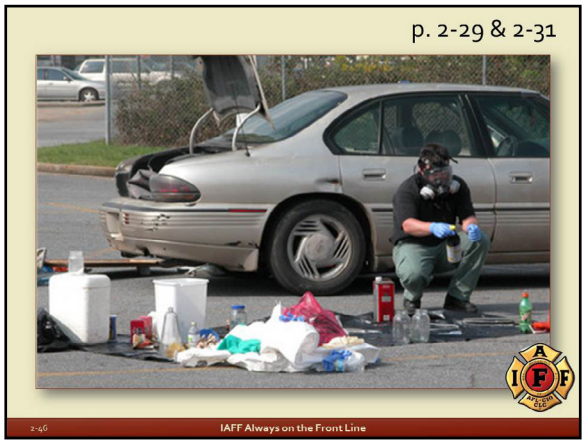
Safe Actions for Responders at Illicit Labs

To avoid exposure or other injury, first responders should limit their initial actions to the following tasks:

- Donning the appropriate PPE
- Isolating the scene
- Evacuating the vicinity
- Requesting assistance from law enforcement and hazardous materials response team
- Avoiding unnecessary contact with materials in the illicit drug lab
- Preparing in anticipation of chemical or fire emergencies
- Preserving any potential evidence
- Determining atmospheric hazards
- Establishing decontamination
- Advising other agencies of potential chemical, fire and physical hazards at the scene



Slide 2-45



Slide 2-46

Slide 2-47

Case Study: Mobile Lab

Figures 2-6 and 2-7 illustrate a lack of personal protective equipment for responders at an illicit lab scene. Review the photos below and answer the questions on page 2-31.

With your team members, discuss the possible reasons for the lack of personal protective equipment during this response. Also, discuss the fire department's role in advising all agency responders in a healthy and safe response.

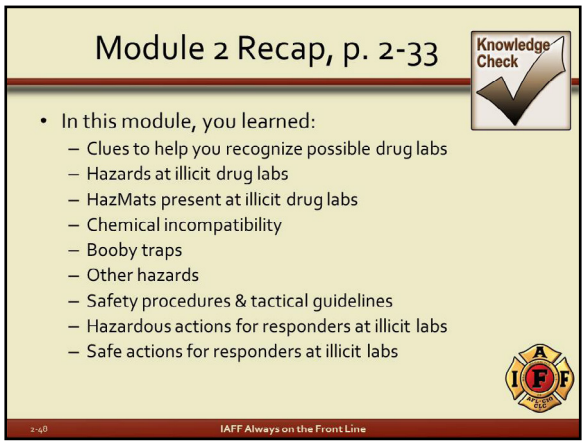
Figure 2-6

Figure 2-7

Case Study: Mobile Lab - Q&A

List possible reasons responders do not wear personal protective equipment.

What role and responsibility does the fire department have to offer advice on the health and safety of responders from other agencies (e.g. law enforcement)?


Module 2 Recap, p. 2-33
Knowledge Check
• In this module, you learned:
– Clues to help you recognize possible drug labs
– Hazards at illicit drug labs
– HazMats present at illicit drug labs
– Chemical incompatibility
– Booby traps
– Other hazards
– Safety procedures & tactical guidelines
– Hazardous actions for responders at illicit labs
– Safe actions for responders at illicit labs
2-48
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Slide 2-48

Recap

In this module you learned:

- Clues to help you recognize possible drug labs
- Hazards at illicit drug labs
- Hazmats present at illicit drug labs
- Chemical incompatibility
- Booby traps
- Other hazards
- Safety procedures and tactical guidelines
- Hazardous actions for responders at illicit labs
- Safe actions for responders at illicit labs

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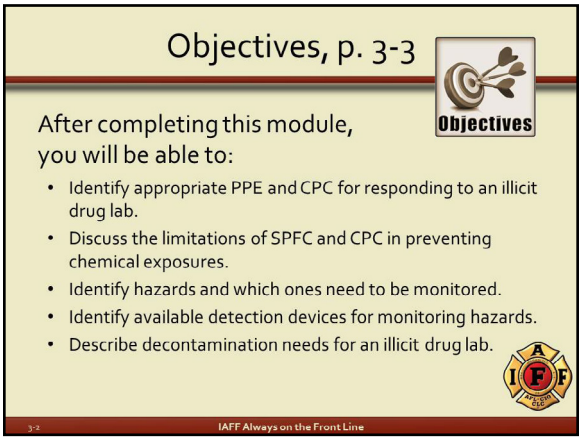
Module 3 – Plan the Response

Section	Time (Min)	Page
Module 3 - Learning Objectives	2	3-3
Utilizing the APIE Process - Plan the Response	5	3-5
Structural Fire Fighting Protective Clothing	10	3-7
Respiratory Protective Equipment	5	3-11
Chemical Protective Clothing (CPC)	5	3-15
Knowledge Check: You Be the Hazmat Safety Officer	5	3-19
Recommendations for PPE Selection	5	3-21
Case Study: Response to a Chemical Odor	5	3-23
Hazards Present When Responding to a Reported Illicit Lab	5	3-27
Hazards to be Monitored and Detection Devices	25	3-29
Decontamination and Decontamination Methods	5	3-53
Suspect and Evidence Decontamination	5	3-55
Recap	3	3-57
Total Time	**1 hour, 25 minutes**	

Slide 3-1

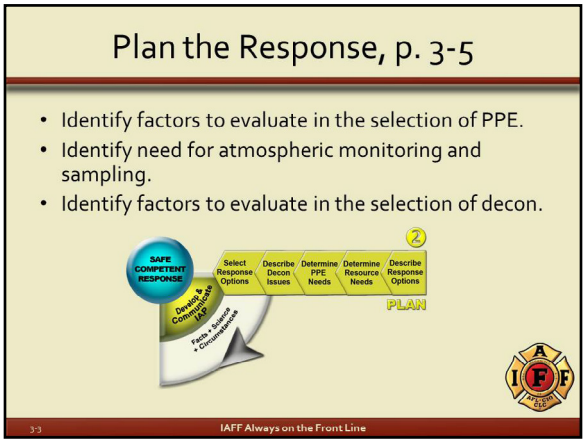


Slide 3-2

Module 3 - Learning Objectives

After completing this module, you will be able to:

- Identify appropriate personal protective equipment (PPE) and chemical protective clothing (CPC) for the fire fighters and Hazmat technicians responding to an illicit drug lab.
- Discuss limitations of structural fire fighting protective clothing (SPFC) and CPC in preventing chemical exposures.
- Identify hazards which need to be monitored at an illicit lab.
- Identify available detection devices for monitoring hazards.
- Describe decontamination needs for responders and civilians at an illicit drug lab.


Plan the Response, p. 3-5
• Identify factors to evaluate in the selection of PPE.
• Identify need for atmospheric monitoring and sampling.
• Identify factors to evaluate in the selection of decon.
SAFE COMPETENT RESPONSE
Develop & Communicate IAP
Facts + Assess + Circumstances
Select Response Options
Describe Decon Issues
Determine PPE Needs
Determine Resource Needs
Describe Response Options
2
PLAN
3-3
IAFF Always on the Front Line

Slide 3-3

Utilizing the APIE Process

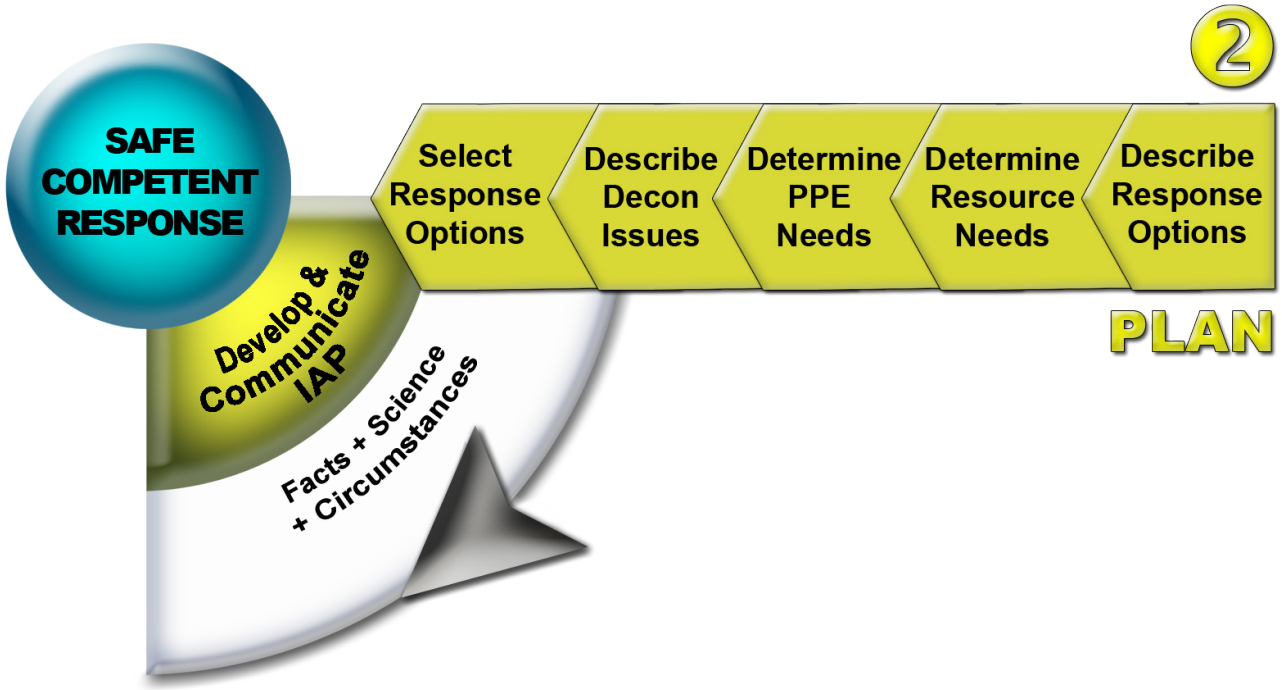
Planning a response entails understanding the nature of an incident and determining a course of action that will favorably change the outcome.

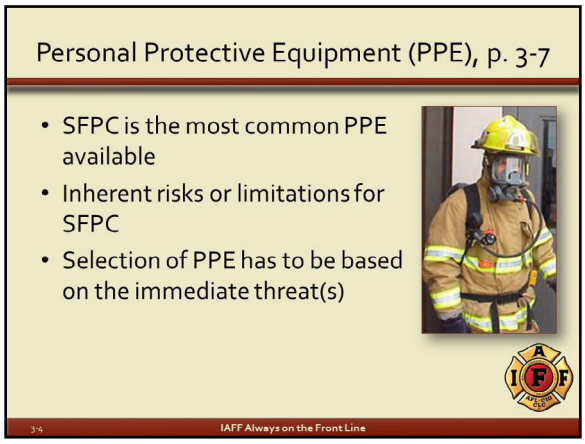
Plan the Response

These actions should only be accomplished after law enforcement agencies have removed all suspects, weapons and booby traps.

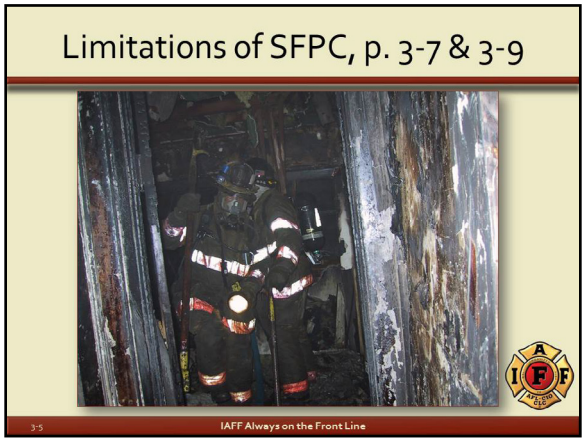
- Identify factors to evaluate in selection of PPE.
- Identify needs for atmospheric monitoring and sampling.
- Identify factors to evaluate in the selection of decon.
- Provide technical information to all agencies on the scene.

Figure 3-1.





Slide 3-4



Slide 3-5

Structural Fire Fighting Protective Clothing (SFPC)

All responders involved in illicit drug lab incidents need personal protective equipment (PPE). The purpose of PPE is to shield or isolate individuals from the chemical, physical and biological hazards encountered during a response to an illicit drug lab.

The type of PPE generally available to first responders includes structural fire fighting protective clothing (SFPC) and self-contained breathing apparatus (SCBA). It is critical to understand the limitations of SFPC. The appropriate type of PPE is determined by the situation and the hazards involved. It must accommodate the required tasks while adequately protecting the responder.

Figure 3-2.

Figure 3-3.

These fire fighters (figure 3-3) responded to a reported structure fire which turned out to have started from a meth lab operation.

The immediate threat to the fire fighters is a thermal issue.

However, once the fire is out, and if any uninvolved containers or chemicals are present, these fire fighters would have limited protection from their SFPC.

SFPC Limitations

Some of the limitations associated with wearing SFPC at illicit labs are:

- It is easily permeated and penetrated by many hazardous chemicals. The clothing is not fully encapsulating, so chemicals can enter through gaps to make direct contact with skin. Chemicals may become trapped between the clothing and skin, causing increased exposure.
- Some parts of SFPC actively absorb chemical liquids and vapors, increasing the amount and duration of exposure.
- SFPC is not tested against chemicals and may be damaged by chemical exposure. For example, turnout gear that has been permeated by a solvent loses its flame resistance.
- Many hardware items lose function or fail when exposed to chemicals. For example, straps deteriorate, hooks and other metal items corrode, and visors are etched.
- Repeated chemical exposures may jeopardize the material's strength and cause component failure. This reduces the lifetime of the garment. For example, the chlorinated byproducts found at illicit drug labs degrade the fibers of PBI/Kevlar turnout gear.
- It may not be possible to decontaminate structural fire fighting gear. Depending on what chemicals it is exposed to, the clothing may need to be destroyed after the response.
- Sophisticated lab tests are required to determine the level of contamination of SFPC.

Respiratory Protection, p. 3-11
MSA
MSA
self-contained breathing apparatus (SCBA)
3-6
IAFF Always on the Front Line

Slide 3-6

Respiratory Protective Equipment

Respiratory protection is vitally important when responding to illicit drug labs because inhalation is a major route of entry for chemicals.

OSHA 29 CFR 1910.134(a)(2) states, “Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program which shall include the requirements outlined in paragraph (c) of this section.”

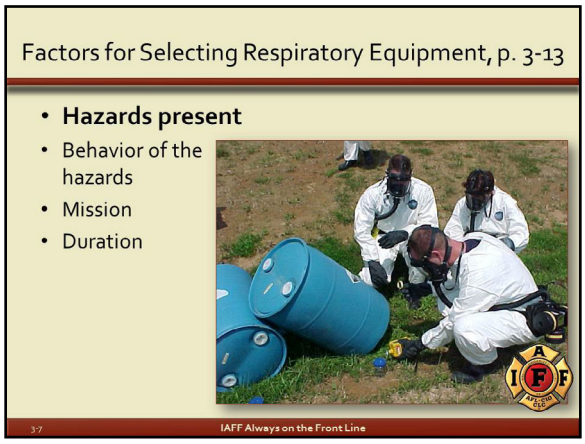
Responders may have several options available to them, including:

- Self-Contained Breathing Apparatus (SCBA) - *figure 3-4*
- Air Purifying Respirators (APR) - *figure 3-5*
- Power Air Purifying Respirators (PAPR) - *figure 3-6*

Figure 3-4.

Figure 3-5.

Figure 3-6.


Factors for Selecting Respiratory Equipment, p. 3-13
• Hazards present
• Behavior of the hazards
• Mission
• Duration
3-7
IAFF Always on the Front Line

Slide 3-7

The selection of equipment is driven by several factors. These factors include:

- **Hazards present**
- Behavior of the hazards
- Mission
- Duration

The unknown environment could compromise the safety of the responder entering a lab for the first time. SCBA will provide maximum respiratory protection for such an entry. Most hazmat teams will select this protection, but unfortunately some responders have been misguided by the ease of operations while using APRs or PAPRs.

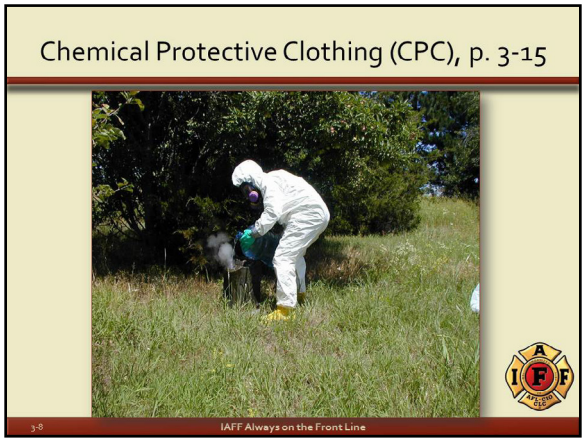
Another mission may warrant a more stealthy approach in which SCBA would hinder the tactical mission. Such a situation may call for the APR or PAPR. After the initial entry, the environment may require responders to convert to SCBAs or continue using the APR or PAPR if the hazards are at low levels. This can only be identified through direct reading and air monitoring instrumentation.

Several things must exist for a responder to be able to wear APR or PAPR protection. They include:

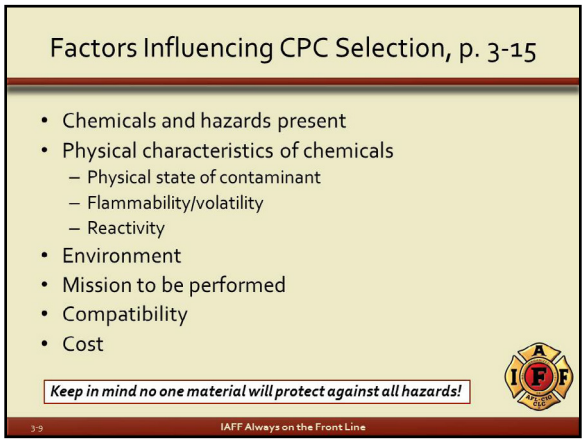
- Known contaminant
- Known levels (continual monitoring)
- Appropriate cartridge selection

Another reason for APR/PAPR usage would be a need for longer work durations. This may be beneficial to the responder, but all three conditions listed above must be met in order to make this selection.

The mission, i.e., what needs to be done, is directly tied to the PPE and respiratory protection to be used.



Slide 3-8



Slide 3-9

Chemical Protective Clothing

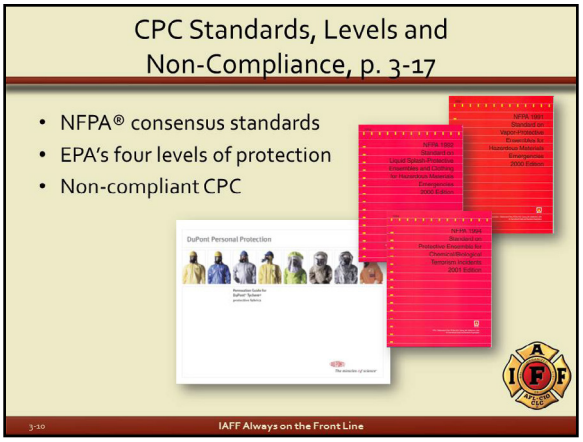
Personal protective clothing is necessary for the response to any illicit lab, whether it is a drug lab, explosives lab or biological lab. Too often responders receive an exposure that might have been avoided through recognition and identification using warning signs previously discussed. Many times labs are recognized upon responding to a medical call or while checking an odor. Removal of the responders from the area suspected is the first step in acknowledging that appropriate chemical protective clothing (CPC)/SPFC is needed for the hazards.

Some of the factors that influence the selection of CPC are:

- Chemicals and hazards present
- Physical characteristics of chemicals
  - Physical state of contaminant
  - Flammability/volatility
  - Reactivity
- Environment
- Mission to be performed
  - Are the responders going to make a tactical entry?
  - Are the responders going to monitor and identify chemicals?
  - Are the responders going to segregate and lab-pack the materials?
- Materials
  - Compatibility
  - Durability

Figure 3-7.

This hazmat team member is off-gassing anhydrous ammonia while wearing a more traditional CPC.


CPC Standards, Levels and
Non-Compliance, p. 3-17
• NFPA® consensus standards
• EPA's four levels of protection
• Non-compliant CPC
DuPont Personal Protection
3-10
IAFF Always on the Front Line

Slide 3-10

Most hazmat teams are using limited-use wear or disposable garments. In addition, there are other suits available that offer a longer breakthrough time protection but are not as widely used. Breakthrough time is the time it takes a chemical to pass through the protective material from initial contact until it can be detected on the opposite side of the material. Disposable suits allow responders to perform decontamination and remove the responder away from the suit, reducing the risk of contamination.

The key thing to remember when selecting a type of CPC is recognition of hazards on site. Too often responders have purchased their ensembles simply because another organization or department has already purchased them, or they did not do their research for adequate compatibility. Prior to selecting CPC, take into consideration the task, or mission-specific task, to be performed.

Some available ensembles target the mission rather than stay universal, as responders have been accustomed to in the past. The key word is mission. The suits will have a permeation chart and possibly an NFPA® certification, but they are marked by their design.

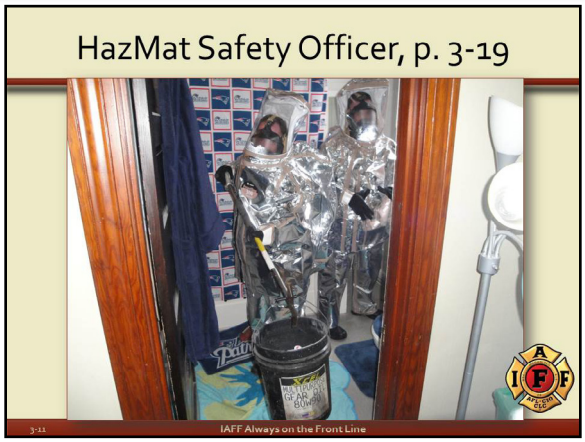
When considering CPC, keep in mind **no one material will protect against all hazards**. Regardless of the ensemble, no one material is totally impermeable forever. For some missions, this is certainly a key factor.

When selecting CPC, the responder must take into account many factors that will influence the level and type selected. When speaking of standards and levels, the fire service references the:

- National Fire Protection Association (NFPA®) standards relating to CPC
    - NFPA®1991, Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies
    - NFPA® 1992, Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies
    - NFPA® 1994, Standard on Protective Ensembles for First Responders to CRBN Terrorism Incidents

There are many different styles of suits from many different manufacturers.

Figure 3-8.



Slide 3-11

Knowledge Check: You Be the Hazmat Safety Officer

Given the scenario:

- There's a methamphetamine lab in the bathroom of a residence.
- The initial entry team identified at least one active one-pot lab in the close quarters.

Write your responses to the questions below.

1. What types of products could be on the scene?

_____

2. What hazards exist in the presence of these products?

_____

3. What type of protection is the entry team wearing?

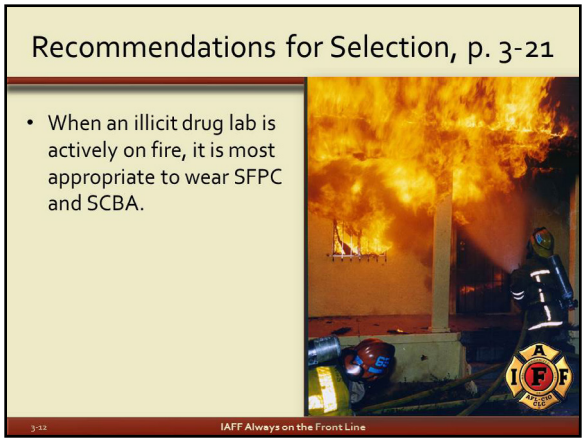
_____

4. Are you comfortable with the CPC pictured? Why or why not?

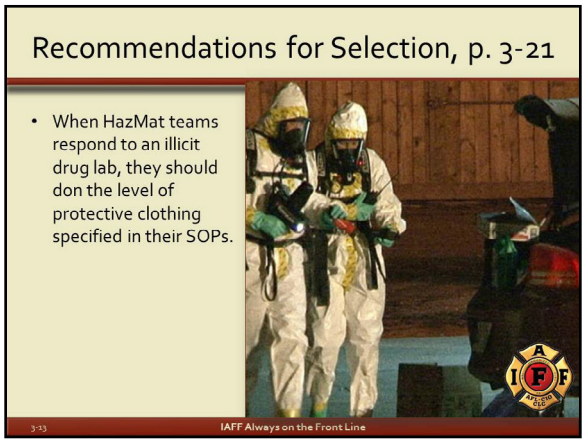
_____

5. What other tactics could be used to control the potential hazards?

_____



Slide 3-12



Slide 3-13

Figure 3-9b on page 3-21 depicts responders using a sky link to allow others to see what meth components are stored in the trunk in real time.

Recommendations for PPE Selection

Selecting the appropriate PPE depends on the situation and the hazards present. Because illicit drug labs are often identified after fire fighters respond to an explosion or fire, the full extent of hazards may not be identified until after the response. Therefore, it is important to be alert to clues indicating an illicit drug lab is present, and adapt your PPE and response accordingly.

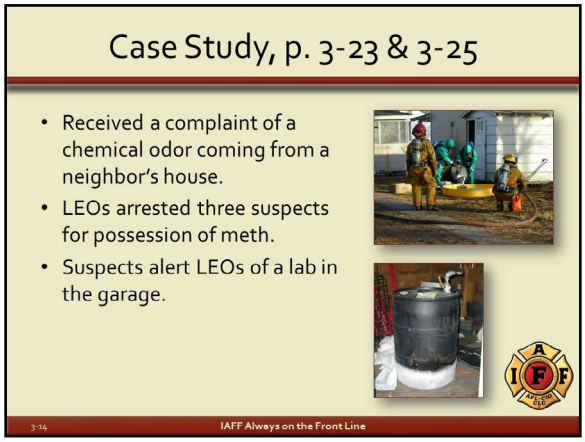
When an illicit drug lab is actively on fire, it is most appropriate to wear SFPC and SCBA (figure 3-9a). Follow your department's SOP/SOG. Many departments employ a defensive exterior attack when fighting an illicit drug lab fire. Once discovered, notify the appropriate government agencies and hazmat teams of your findings. Be cognizant of the limitations of SFPC and be sure to clean all clothing and equipment at the scene. SFPC may have to be destroyed if it cannot be sufficiently decontaminated.

When an illicit drug lab is not actively on fire, there is still a possibility for thermal hazard. For these situations, there is CPC available that is both fire-resistant and provides chemical protection. CPC (figure 3-9b) may be available but may not be the best choice.

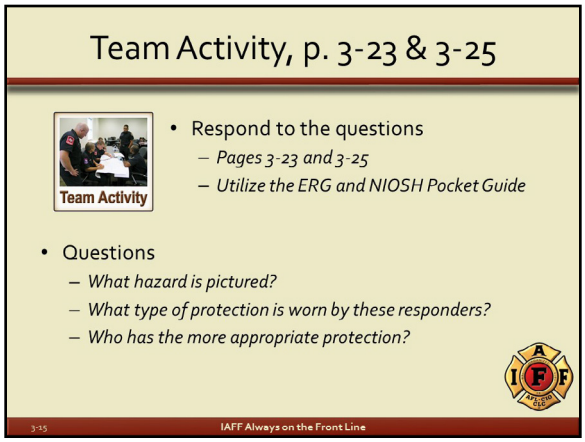
If the anhydrous ammonia method of methamphetamine production is suspected in an enclosed area, monitor the air for anhydrous ammonia, and have responders don the level of protective clothing specified in their SOPs/SOGs.

Figure 3-9a.

Figure 3-9b.



Slide 3-14



Slide 3-15

Case Study: Response to a Chemical Odor

Responding crews received a complaint of a chemical odor coming from a neighbor's house. Law enforcement officers (LEOs) arrested three suspects for possession of methamphetamines. Suspects alerted LEOs of a lab in the garage.

With members of your team, review the corresponding information in the Emergency Response Guide (ERG) and NIOSH Pocket Guide, and discuss the following.

1. *What is the hazard pictured here?*

_____

_____

_____

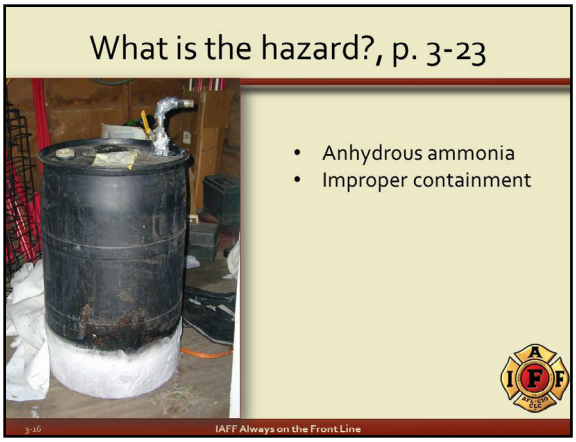
2. *What type of protection is worn by these responders?*

_____

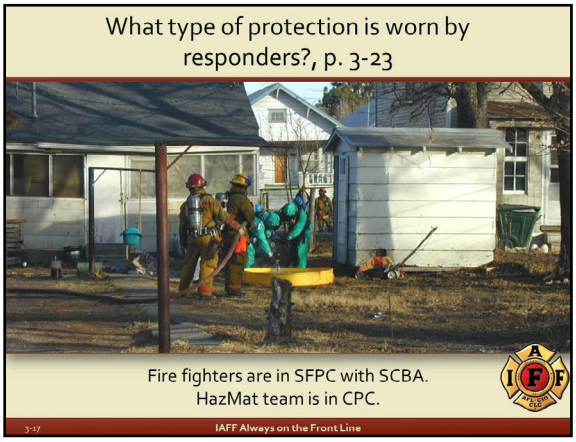
_____

_____

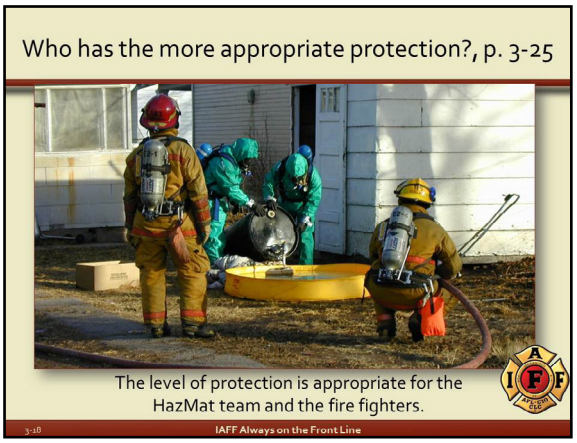
_____



Slide 3-16

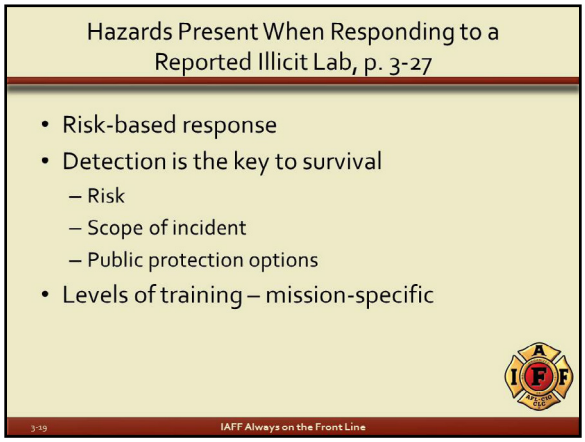


Slide 3-17



Slide 3-18

3. *Who has the more appropriate protection?*


Hazards Present When Responding to a Reported Illicit Lab, p. 3-27
• Risk-based response
• Detection is the key to survival
– Risk
– Scope of incident
– Public protection options
• Levels of training – mission-specific
3-19
IAFF Always on the Front Line

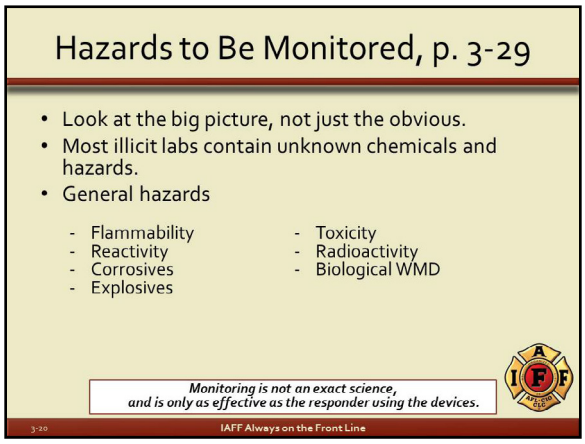
Slide 3-19

Hazards Present When Responding to a Reported Illicit Lab

Once the presence of an illicit drug lab is known, responders must look at the approach as a risk-based response. Putting together which clues are present, and how the chemicals behave, will influence the operations of the responders.

The use of detection devices is the key to survival in the response to illicit labs. Current technology gives the hazmat technician an advantage that has not been available to responders until a few years ago. By recognizing the household chemicals common to illegal drug labs, responders can reasonably predict the behavior of such chemicals. With this knowledge, LEOs and hazmat team members can use air monitoring to determine their risk, the scope of incident and public protection options.

For responders trained to the operations level whose priorities are to isolate the area and set support functions (example: decontamination area), air monitoring is necessary to allow responders to establish the area in a clean environment.


Hazards to Be Monitored, p. 3-29
• Look at the big picture, not just the obvious.
• Most illicit labs contain unknown chemicals and hazards.
• General hazards
- Flammability
- Reactivity
- Corrosives
- Explosives
- Toxicity
- Radioactivity
- Biological WMD
Monitoring is not an exact science,
and is only as effective as the responder using the devices.
3-20
IAFF Always on the Front Line

Slide 3-20

Hazards to Be Monitored and Detection Devices

Most illicit labs contain unknown chemicals and hazards. The responders must look for the general hazards of these materials:

- Flammability
- Reactivity
- Corrosivity
- Explosives
- Toxicity
- Radioactivity
- Biological hazards

For each of the hazards that can be encountered, there are specific instruments that can be used for detection.

Most monitoring instrumentation is qualitative, and doesn't tell the responder how much there is, but merely the presence or absence of such illicit drug chemicals.

Remember that the instruments used to protect the responder are only as effective as the responder using them. A person not properly trained in air monitoring is at an extreme disadvantage, and may be placing themselves, and others, in harm's way.

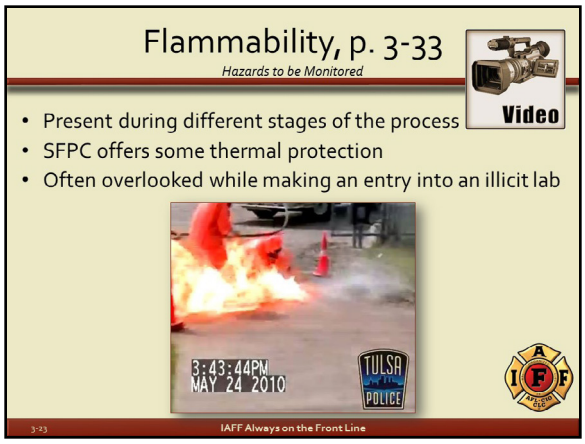
Slide 3-21 & 3-22

Use of Detection Devices

The responder, whether part of a hazardous materials team or tactical law enforcement, must be able to determine what types of hazards exist. Illicit drug labs may have many small containers of volatile chemicals or reagents. Whether it is acetone or gasoline, a responder who cannot identify the presence of a potentially flammable atmosphere could be walking into a ticking time bomb. A responder may or may not be able to identify the specific chemical, but must be able to identify if any of the hazards listed on page 3-29 are present.

Figure 3-10.

During a training exercise, the lead S.W.A.T. Operator is discreetly wearing two detection devices. Write in the space below what the two detection devices are and where they are located.


Flammability, p. 3-33
Hazards to be Monitored
Video
• Present during different stages of the process
• SFPC offers some thermal protection
• Often overlooked while making an entry into an illicit lab
3:43:44PM
MAY 24 2010
TULSA
POLICE
3-23
IAFF Always on the Front Line

Slide 3-23

Hazards and Detection Devices

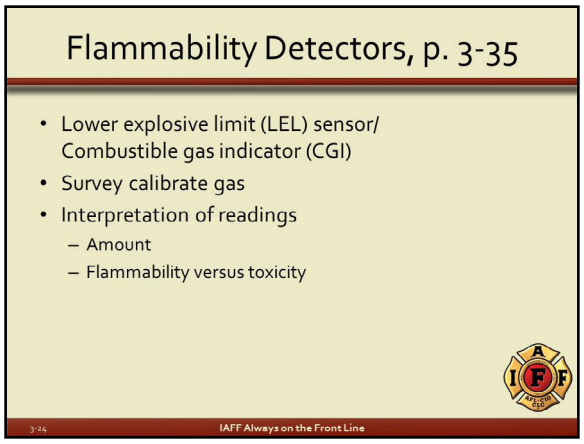
Note that, although specific air monitors/detectors are illustrated and discussed, the IAFF is not promoting any specific brand of monitors/detectors. The monitors/detectors used by their department may be different from those discussed in this module.

Flammability

The presence of chemicals common in an illicit lab, such as acetone, ethyl ether, isopropanol, paint thinner and camp stove fuel, may create a flammable atmosphere.

The responder without SFPC has no protection from this environment. During the cooking process at some meth labs the heating of such volatile hydrocarbons creates a flammability hazard. One-pot labs also have a high flammability hazard. Hazmat team members or LEOs wearing CPC, without the knowledge of any flammability monitoring being performed, are at great risk if any of the materials reach their flammable range and find an ignition source, or if a one-pot lab ignites.

Figure 3-11.



Slide 3-24

Slide 3-25

Flammability Detectors

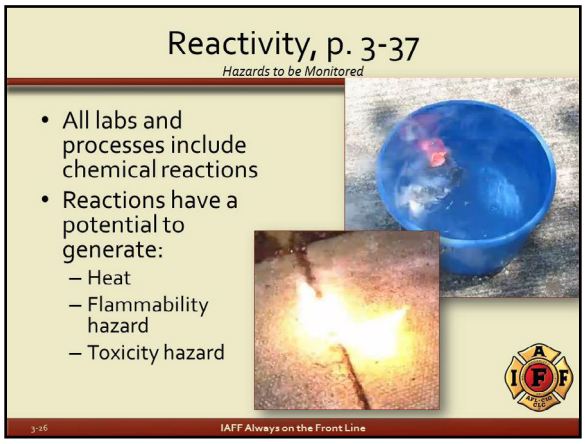
The most common detection device to measure flammability is the ***Combustible Gas Indicator (CGI).*** This detection device must reflect a good survey gas (calibrate gas) to rely on the action levels set forth by the instrument for the mission.

Illicit drug labs have a range of hydrocarbons which will burn cool or hot, so the true reading may vary. A strong survey gas is needed to provide a safe buffer when the atmosphere is unknown. Once flammability is identified, the primary hazard is fire/explosion. Remember most instruments measure in large quantities, so the IDLH of many hydrocarbons may have been reached long before they are flammable.

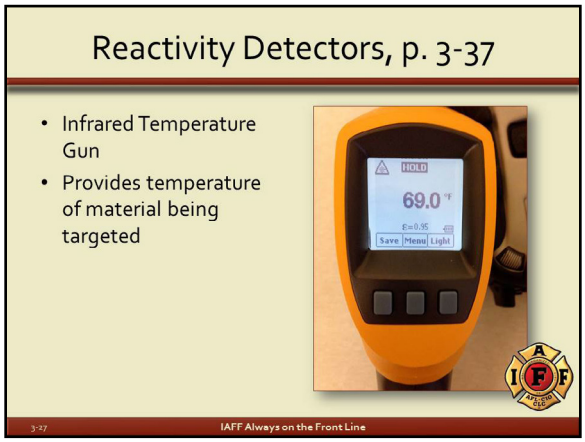
Figure 3-12.

This device displays flammability and toxicity. It allows the responder to read and recognize when a flammable danger is present (in the lower left corner) and the volatile organic compound (at the top). The TOX 1 and 2 readings are chemical-specific, and relate to the toxicity capabilities.

Figure 3-13.



Slide 3-26



Slide 3-27

Reactivity

All lab types and processes include chemical reactions. The reactions have the potential to generate heat, flammable and toxic hazards. The use of water reactive metals, such as lithium, as catalysts presents a fire hazard. This risk is especially true in the one-pot method if lithium comes in contact with water in the container. This is the cause of many fires. An understanding of this method and care must be taken when handling these labs.

Figure 3-14.

Figure 3-15.

From left to right - Lithium reacting with water and fire.

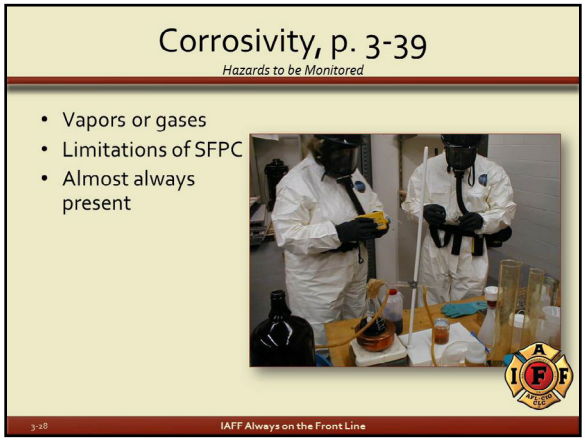
Reactivity Detectors

An ***infrared temperature gun*** can be used to provide a temperature of the material being targeted. The detector doesn't actually detect anything, however it can provide clues to whether or not a chemical reaction is taking place. Increasing temperatures are indicative of a chemical reaction. For example, a one-pot cook that is active will have an increasing temperature. Conversely, some containers will have a lower temperature due to improper storage, such as associated with anhydrous ammonia.

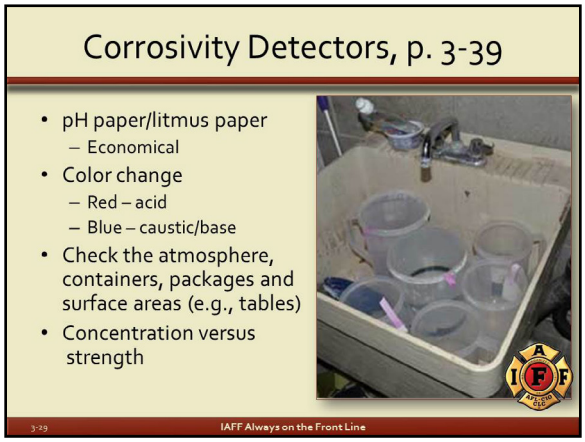
Figure 3-16.

Figure 3-17.

The temperature gun must not be confused with a thermal imaging camera (TIC). A TIC is not as accurate as a temperature gun.



Slide 3-28



Slide 3-29

Slide 3-30

Corrosivity

The responder, typically encounters a threat in the form of a gas, vapor or liquid, depending upon where the cooks are in the manufacturing process. Examples of corrosive chemicals include an acid (figure 3-18) and a base (figure 3-19).

Typical SFPC offers limited chemical protection, and equally limited protection against corrosive vapors. Although an SCBA provides maximum respiratory protection, additional CPC is needed to prevent corrosive injury to the skin of a responder.

Figure 3-18.

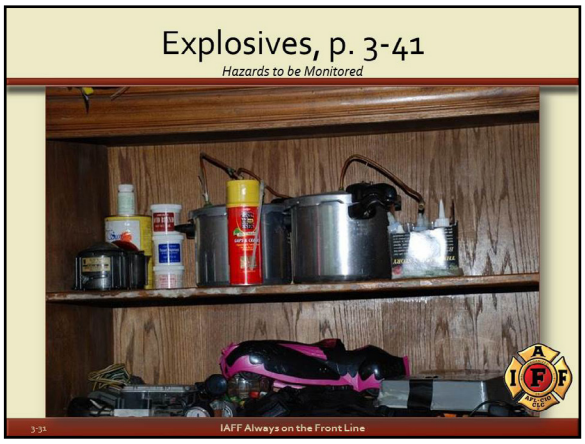
Figure 3-19.

Corrosivity Detectors

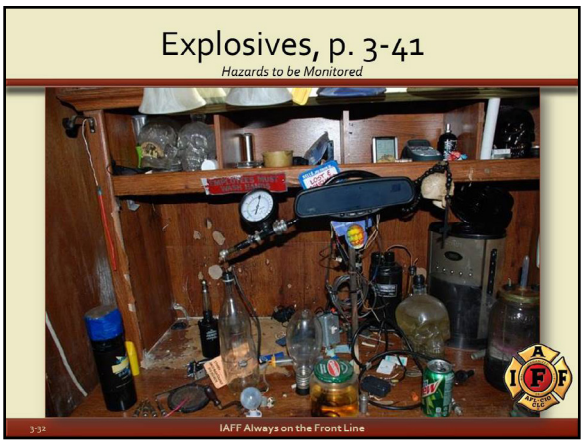
pH (litmus) paper is a very economical and appropriate choice of detection capability for the responder to utilize. It is a safe way to determine if corrosive vapors are in the area. Upon entry of the structure, the responder can look for a color change in the paper to determine if a high vapor pressure corrosive is present. The swiping of container lids closures and openings can help determine if the material is corrosive. Although it does not indicate the concentration of the corrosive, it will determine the pH value.

Figure 3-20.

Blue defines a caustic/base chemical, while the red defines an acid. The color change on the litmus paper in figure 3-20 identifies the presence of a corrosive.



Slide 3-31



Slide 3-32

Explosive Detectors, p. 3-41

- Types:
  - Raman
  - Fourier Transform Infrared (FT-IR)
- Some precursors and actual explosive materials can be identified.
- Screening for DOT suspected explosives is **NOT** recommended as this may cause the material to detonate.

3-33 IAFF Always on the Front Line

Slide 3-33

Explosives

A responder may encounter a lab that includes explosives, such as the pressure cookers seen in figure 3-15. Any and all powders found are suspected as explosive compounds.

Flammable liquids and corrosives are used as precursors, such as:

- Acetone
- Sugar
- Vaseline
- Hydrogen peroxide
- Nitric acid
- Sulfuric acid

Materials that are found may be shock sensitive. Odors play a role, but conventional detection is not a rule out.

Figure 3-21.

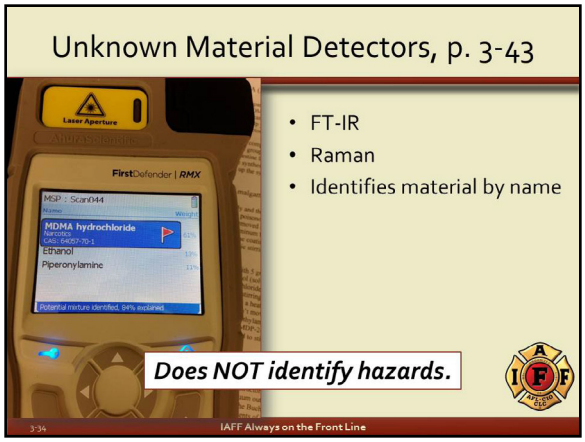
Figure 3-22.

Figures 3-21 and 3-22 depict pressure cooker bomb and parts.

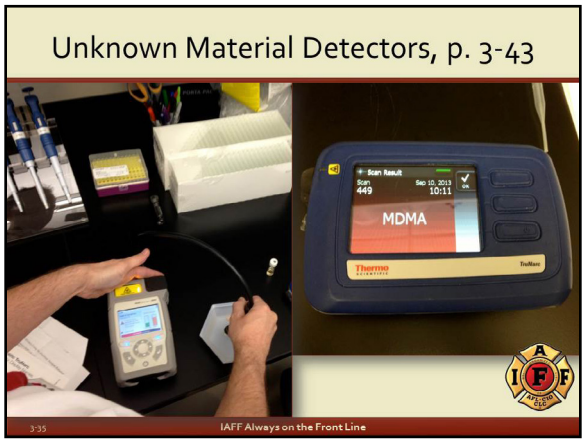
Explosive Detectors

Explosive detectors such as the ***Raman*** and ***Fourier Transform Infrared (FT-IR)*** can be used to identify some precursors and actual explosive materials. Examples of these devices can be found on page 3-43 under Unknown Material Detectors.

The screening for DOT suspected explosives is NOT recommended, as this may cause the material to detonate.



Slide 3-34



Slide 3-35

Unknown Material Detectors

This technology is to be used only after hazards are screened prior to the application. Two types of devices used to determine the material are:

- ***Fourier Transform Infrared (FT-IR)***
- ***Raman***

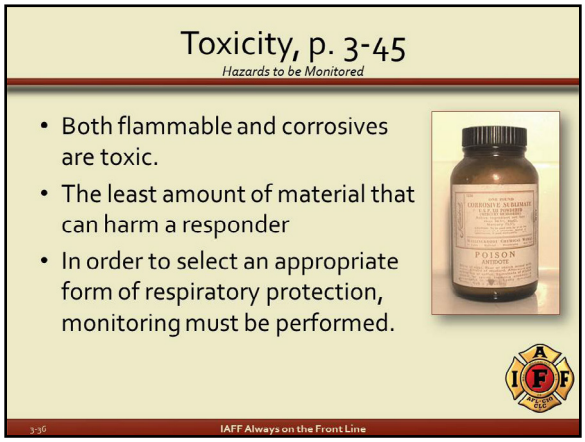
This technology offers the responder a chance to identify what the material could be by name, however it does **NOT** identify the hazards.

Figure 3-23.

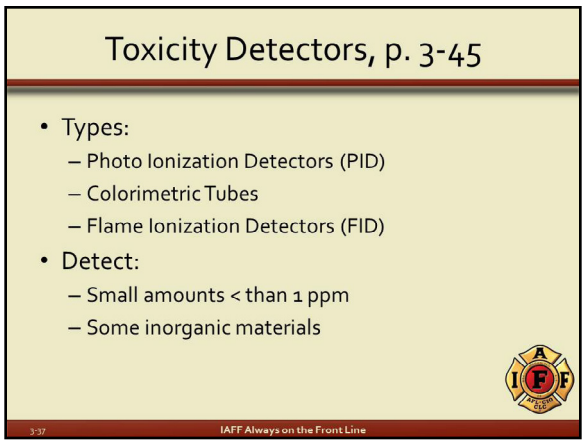
ThermoScientific RMXT TruNarc

Figure 3-24.

TruNarc, a Raman system, is being used to test for MDMA.



Slide 3-36



Slide 3-37

Slide 3-38

Toxicity

Figure 3-24.

Small amounts of both flammable and corrosive materials produce a toxicity threat to responders. The ability of such chemicals to attack the SFPC or CPC is referred to as the "behavior" of these chemicals. Toxicity can be protected against by wearing SCBA and proper CPC. Responders put themselves at risk when the selection of an APR/PAPR is used without appropriate monitoring. Hydrogen chloride gas/ hydrochloric acid vapors, anhydrous ammonia, phosphine gas and isopropyl alcohol are examples of chemicals that can be toxic, not only upon skin/dermal contact, but may be more detrimental by inhalation exposure. Toxicity by inhalation deals with much smaller quantities than flammability or corrosivity hazards.

When faced with potential toxicity, it is necessary to measure the level of oxygen present. This is directly related to toxicity because, in order for a reduced level of oxygen to occur, there must be a large amount of another chemical displacing it. On an instrument detecting oxygen (O_2), a 1% drop is up to 50,000 ppm of another chemical replacing it. That exceeds every chemical's IDLH that has been discussed in previous units.

Toxicity Detectors

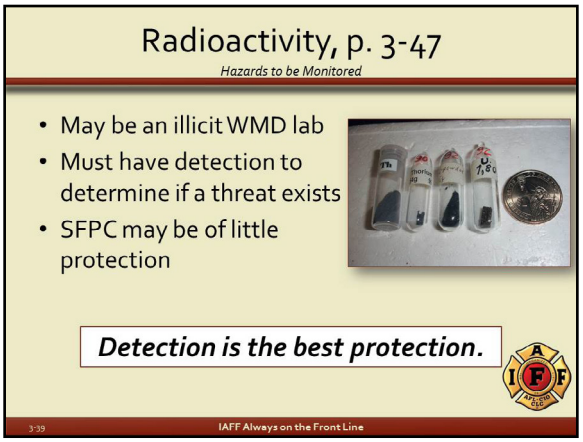
Toxicity can be detected by several types of instrumentation, including the following:

- ***Photo Ionization Detectors (PID)*** *- figure 3-26*
- ***Colorimetric Tubes***
- ***Flame Ionization Detectors (FID)*** *- figure 3-27*

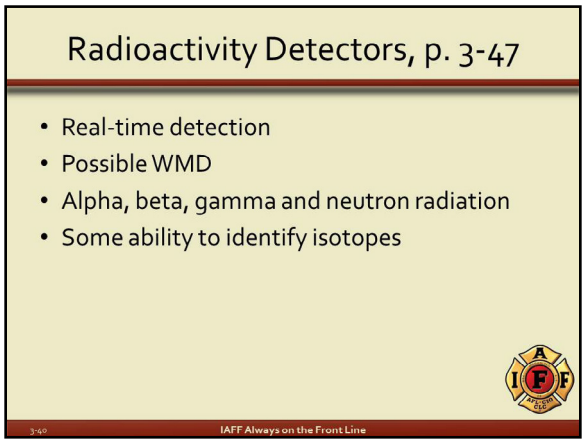
These detectors are used often by hazmat teams and LEOs, and can be outstanding survey tools in detecting the presence of toxicity. PID readings represent the total amount of gases and vapors in the air. They have the ability to measure less than one part per million, and can detect a flammable hazard long before the sensor will be able to detect the chemical. Some PID meters also detect inorganic materials that are likely to be present, such as anhydrous ammonia.

Figure 3-26.

Figure 3-27.



Slide 3-39



Slide 3-40

Slide 3-41

Radioactivity

Not all illicit labs are drug labs. Although the likelihood of encountering a WMD lab may be small, it does not negate the hazards that will be present. As with the previous hazards mentioned, a radioactive threat in the form of alpha, beta or gamma needs to be addressed through detection. SFPC offers little protection against radioactivity. While some CPC offers better protection, some forms of radiation will penetrate any protection the responder may be wearing. The radioactive dose received may be irreversible and unknown to the responder unless detection is being performed with the intent to rule out the presence of a radioactive hazard.

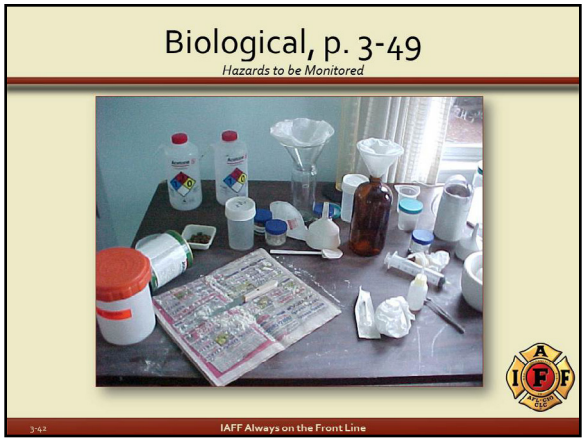
Figure 3-28.

Radioactivity Detectors

A radiation meter has the capability to detect alpha, beta and gamma radiation. Some devices have the capability to detect neutrons which should be identified during the intelligence gathering of the incident to determine what hazards may be present due to a possible illicit WMD lab. Due to the behavior of these radioactives, responders using these instruments can quickly identify what the threat is. There are also devices that can identify the isotope, based upon matching the stored library in the device.

The radiation meter in figure 3-29 is able to detect alpha, beta and gamma radiation. It is an easily operated device used to determine if a radioactive threat exists.

Figure 3-29.


Biological, p. 3-49
Hazards to be Monitored
3-42
IAFF Always on the Front Line

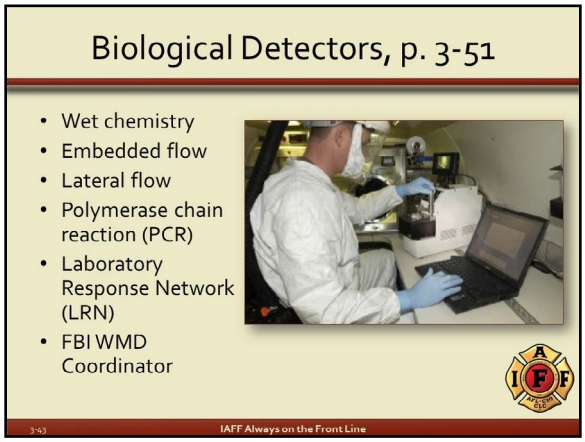
Slide 3-42

Biological Hazards

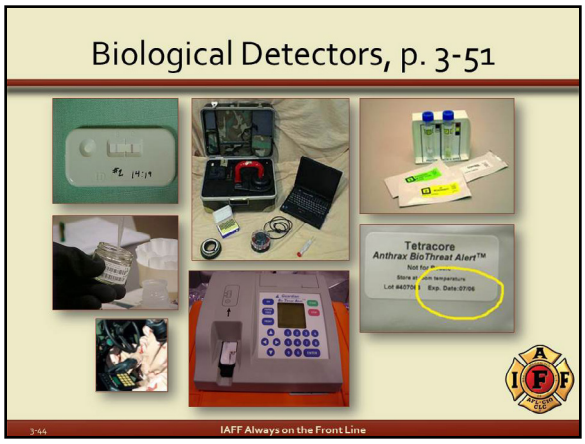
Biological labs are environments where detection capability is limited. Threats exist due to the nature of the agents themselves. Some toxin labs, such as a ricin lab, use household chemicals that are also found in the production of illicit drug labs. Although it may be a biological lab, the immediate hazard to responders is the presence of household chemicals. Suspected biological threat agents should be properly packaged and sent to the nearest Laboratory Response Network (LRN) laboratory for testing. In addition, the Federal Bureau of Investigation (FBI) Weapons of Mass Destruction (WMD) coordinator in the local FBI field division must be notified when such suspected hazards are encountered.

Figure 3-30.

Shown is a ricin lab using consumer chemicals to manufacturer the bio-agent. Flammable solvents and corrosives are present, and a commercial meter would be able to detect their presence. Hand-held assay (HHA) or other commercial biological detection exist, but isn't confirmed.



Slide 3-43



Slide 3-44

Figure 3-31. Clockwise starting in the upper left corner - Alexator Guardian Reader, Rt Gneium 20/20 protein test, Idaho RAPID, certified sample jar with pipette and Tetracore Bio Agent HHA.

Figure 3-32 is an example of an Emergency Sample Information form, and figure 3-33 is an example of a Chain of Custody form.

Biological Detectors

A responder may or may not have the ability to screen for biological agents. Although technology is becoming more and more available to the response community, the accuracy and sensitivity varies greatly among different products and technologies. If the intent is to screen and possibly lead the responder to make a risk-based response decision, the biological detection does have an application.

Although some detection devices will point out what biological threat agent they are screening for, in order for product identification to be made, a sample has to be tested at an approved laboratory that is part of the Laboratory Response Network (LRN). The FBI has a WMD Coordinator within each of its respective divisions. This person is a point of contact who will enable the responders to identify the appropriate steps and what procedures that may need to be followed.

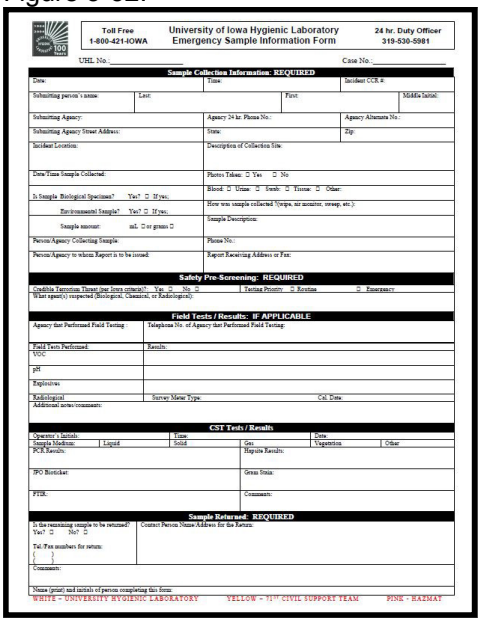
If the illicit lab is a WMD lab, it may also contain chemicals which may present an explosive threat. Although there are detection devices that can identify such precursors and explosive materials, the responder should request assistance from a bomb squad or military explosive ordnance disposal (EOD). While some hazmat teams may be able to identify the materials, it is the bomb technicians who should identify the end product, which is the primary threat.

Examples of forms used in Iowa for biological sampling can be found in the Appendix.

- Emergency Sample Information Form - Appendix E
- Chain of Custody Form - Appendix F

Figure 3-31.

Figure 3-32.



Toll Free 1-800-421-IOWA | University of Iowa Hygienic Laboratory Emergency Sample Information Form | 24 hr. Duty Officer 319-530-5981

UHL No.:_____ Case No.:_____

Sample Collection Information: REQUIRED

Date:		Time:	Incident CCR #:
Submitting person's name:	Last:	First:	Middle Initial:
Submitting Agency:		Agency 24 hr. Phone No.:	Agency Alternate No.:
Submitting Agency Street Address:		State:	Zip:
Incident Location:		Description of Collection Site:	
Date/Time Sample Collected:		Photos Taken: ☐ Yes ☐ No	
Is Sample Biological Specimen? Yes? ☐ If yes;		Blood: ☐ Urine: ☐ Feces: ☐ Tissue: ☐ Other:	
Environmental Sample? Yes? ☐ If yes;		How was sample collected (swipe, air monitor, swap, etc.):	
Sample amount: mL ☐ or grams ☐		Sample Description:	
Person/Agency Collecting Sample:		Phone No.:	
Person/Agency to whom Report is to be issued:		Report Receiving Address or Fax:	

Safety Pre-Screening: REQUIRED

Credible Terrorism Threat (per Iowa criteria)? Yes ☐ No ☐ | Twitter Prison ☐ Routine ☐ Emergency
What agent(s) suspected (Biological, Chemical, or Radiological):

Field Tests / Results: IF APPLICABLE

Agency that Performed Field Testing:	Telephone No. of Agency that Performed Field Testing:
Field Tests Performed:	Results:
VOC	
pH	
Explosives	
Radiological	Survey Meter Type: Cal. Date:

Additional notes/comments:

CST Tests / Results

Operator's Initials:	Time:	Date	
Sample Medium: Liquid	Solid	Gel:	Vegetation Other
PCR Results:		Hepatite Results:	
IFO Bioticket:		Gram Stain:	
FTIR:		Comments:	

Sample Returned: REQUIRED

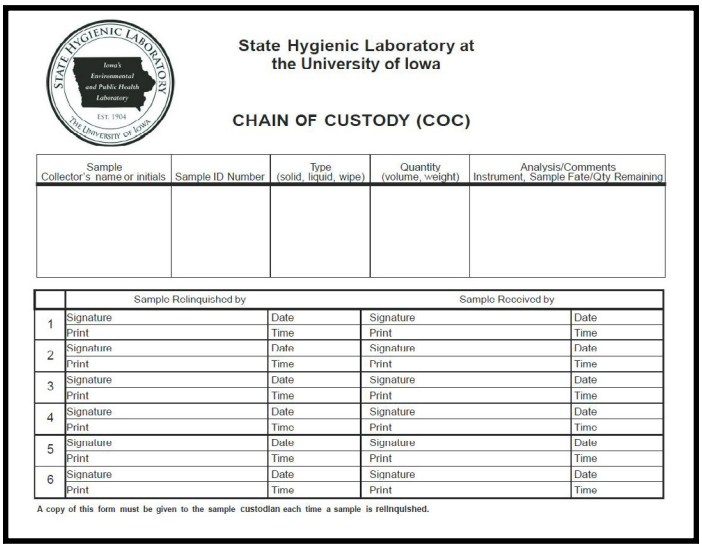
Is the remaining sample to be returned? Yes? ☐ No? ☐ Tel./Fax numbers for return: ( ) ( )	Contact Person Name/Address for the Return:

Comments:

Name (print) and initials of person completing this form:

WHITE - UNIVERSITY HYGIENIC LABORATORY YELLOW - 71st CIVIL SUPPORT TEAM PINK - HAZMAT

Figure 3-33.



State Hygienic Laboratory at the University of Iowa

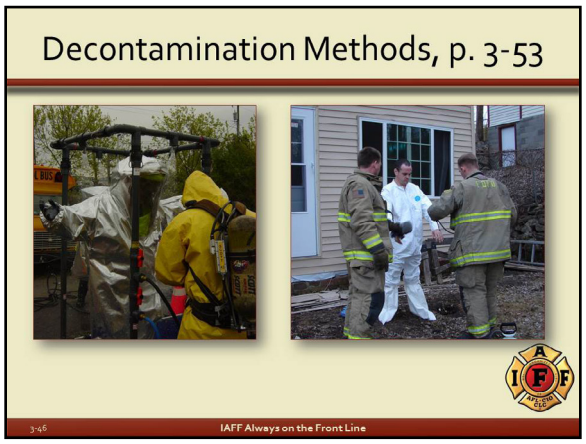
CHAIN OF CUSTODY (COC)

Sample Collector's name or initials	Sample ID Number	Type (solid, liquid, wipe)	Quantity (volume, weight)	Analysis/Comments Instrument, Sample Fate/Qty Remaining

	Sample Relinquished by		Sample Received by	
1	Signature	Date	Signature	Date
	Print	Time	Print	Time
2	Signature	Date	Signature	Date
	Print	Time	Print	Time
3	Signature	Date	Signature	Date
	Print	Time	Print	Time
4	Signature	Date	Signature	Date
	Print	Time	Print	Time
5	Signature	Date	Signature	Date
	Print	Time	Print	Time
6	Signature	Date	Signature	Date
	Print	Time	Print	Time

A copy of this form must be given to the sample custodian each time a sample is relinquished.

Slide 3-45



Slide 3-46

Decontamination and Decontamination Methods

Decontamination is the process of removing contaminants that have accumulated on personnel and equipment. This process is essential for responder health and safety. Decontamination protects fire fighters from exposure to hazardous substances that contaminate and may permeate protective clothing, respiratory equipment, tools, vehicles and other equipment used at the scene. It also protects other fire fighters at the station and the families of responders by minimizing the transfer of harmful materials that can be carried on skin, clothes and boots. Decontamination also protects the community by preventing uncontrolled transportation of contaminants from illicit drug labs. As with other hazmat incidents, fire fighters need to prevent contamination as well as determine a decontamination plan. In addition to standard decontamination procedures, responders may also need to consider suspect and evidence decontamination.

Decontamination Methods

All personnel, clothing, equipment and samples leaving the hot zone (where there is exposure to hazardous materials) must be decontaminated. Decontamination methods include:

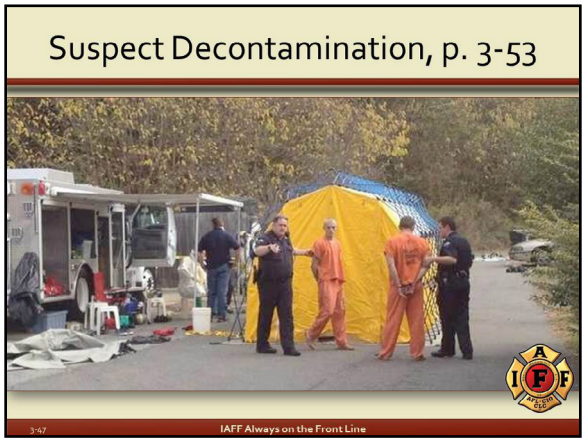
- Physically removing contaminants
- Deactivating contaminants by chemical detoxification or disinfection
- Removing contaminants by a combination of physical and chemical methods

The most common method for decontaminating fire fighters' outer SFPC garments involves scrubbing with detergent and water.

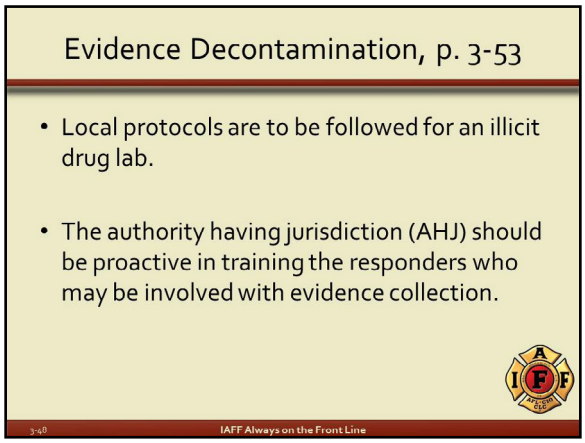
Other methods may be more appropriate, depending on the item being decontaminated. For example, equipment used for patient care that is contaminated with blood or body fluids is best treated by removing visible liquid with a tissue, wiping thoroughly with a disinfectant, and allowing complete air-drying.

Bare skin should be decontaminated with water, a gentle soap and minimal scrubbing with a soft cloth.

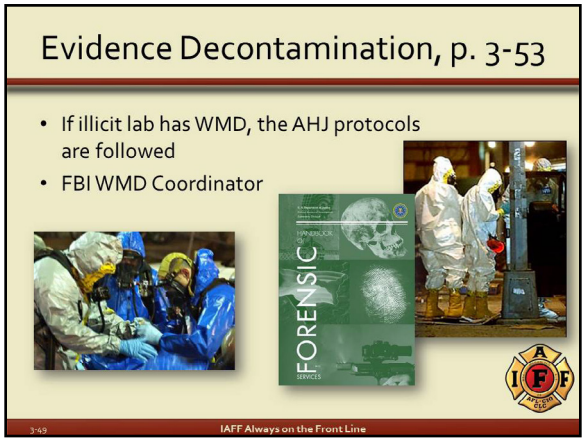
The individual in charge of decontamination should be specially trained in this area and competent to choose the method most appropriate to the contaminant and the item to be decontaminated.



Slide 3-47



Slide 3-48



Slide 3-49

Suspect Decontamination

Although dealing with a suspect in custody may seem routine to LEOs, having to perform decontamination is not. The handling should be done by appropriate hazmat-trained LEOs. It is beneficial to have the local LEOs trained in CPC.

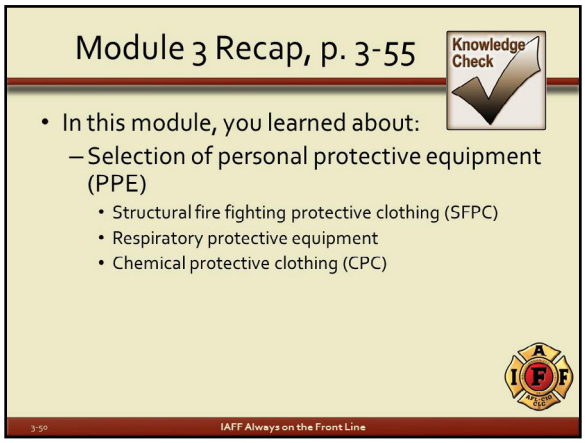
In the decontamination of a subject under custody, having to restrain the individual may put hazmat team members and fire fighters at risk. Typical restraints such as handcuffs become contaminated. Flex cuffs can be cut and re-secured when handling the subject. Remove all clothing from suspects, preferably having them do it themselves. Not only does this eliminate a lot of the contaminants, it will also prevent the concealment of any weapons.

Figure 3-34.

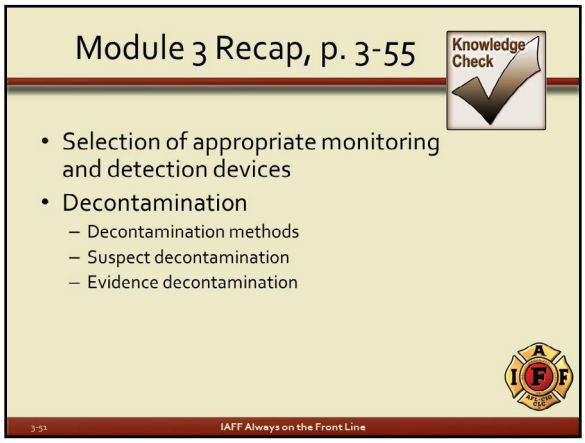
Shown are suspects after decon was performed on them.

Evidence Decontamination

Although the need to process evidence may be pressing, especially with biological samples, the responders must be decontaminated first. Time is not critical when dealing with the evidence – the evidence is! Meaning, the need to establish the appropriate chain of custody must exist. At illicit drug labs, the local LEOs typically will have direction and can establish this on site. However, if the threat is biological, then the need to follow the respective LRN lab identified protocols is a must. These labs will have procedures that must be followed prior to receiving the evidence. It is recommended the agency having jurisdiction (AHJ) make contact with the local FBI and inquire who the WMD Coordinator, is for additional resources. This contact can be a strong liaison prior to the response to a biological lab.



Slide 3-50



Slide 3-51

Recap

In this module you learned about:

- Selection of personal protective equipment (PPE)
    - Structural fire fighting protective clothing (SFPC)
    - Respiratory protective equipment
    - Chemical protective clothing (CPC)
- Selection of appropriate monitoring and detection devices
- Decontamination methods
    - Suspect decontamination
    - Evidence decontamination

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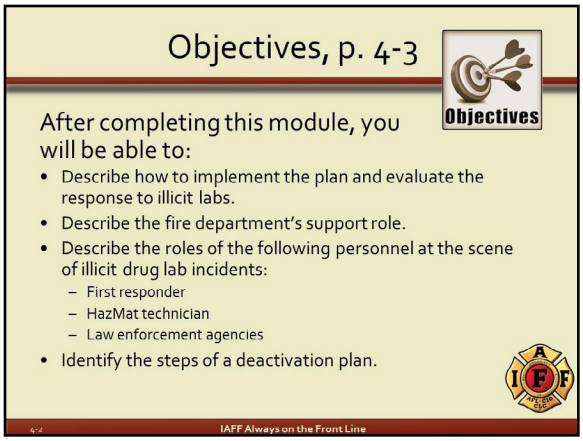
Module 4 – Implement and Evaluate the Response

Section	Time (Min)	Page
Module 4 - Learning Objectives	2	4-3
Utilizing the APIE Process - Implement the Planned Response	5	4-5
Fire Department Support	10	4-7
Evidence Preservation	3	4-15
Activity: Group Discussion of Fire Department Roles	8	4-17
Utilizing the APIE Process - Evaluate the Progress	3	4-19
Deactivation Phase	2	4-20
Recap	2	4-23
Total Time	**35 min.**	

Slide 4-1



Slide 4-2

Module 4 - Learning Objectives

After completing this module you will be able to

- Describe how to implement the response at illicit drug lab incidents.
- Describe the fire department's support role in illicit drug lab incidents.
- Describe the roles of the following personnel at the scene of illicit drug lab incidents:
    - First Responder – Fire Fighter/Emergency Medical Technician
    - Hazmat Technician
    - Law Enforcement Agencies
- Describe how to evaluate the progress of the response at illicit drug lab incidents.
- Identify the steps of the deactivation phase.

Implement the Response, p. 4-5

- Implement the planned response
  - Based on analysis and planning done in previous two steps

4-3 IAFF Always on the Front Line

Slide 4-3

Implement the Response, p. 4-5

- Conduct decontamination

A suspect from an active lab is decontaminated.

An assessment team member is decontaminated.

4-4 IAFF Always on the Front Line

Slide 4-4

Implement the Response, p. 4-5

- Identify atmospheric hazards through air monitoring and sampling
- Rescue operations only after risk/benefit analysis
- Ventilation from the outside
  - Windows
  - Doors
  - Positive pressure blowers (be aware of flammable/explosive hazards)

4-5 IAFF Always on the Front Line

Slide 4-5

Implement the Response, p. 4-5

- Mitigate hazardous conditions only if they pose a threat to the public or responders.
- Coordinate with law enforcement investigation and preserve evidence.
- Provide emergency medical care.
- Document all scene activities and personnel.

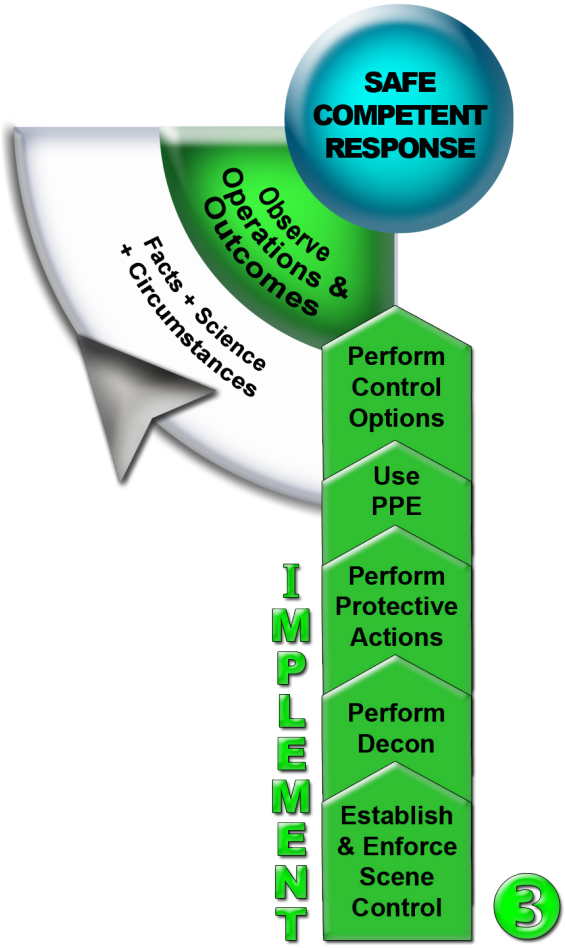
4-6 IAFF Always on the Front Line

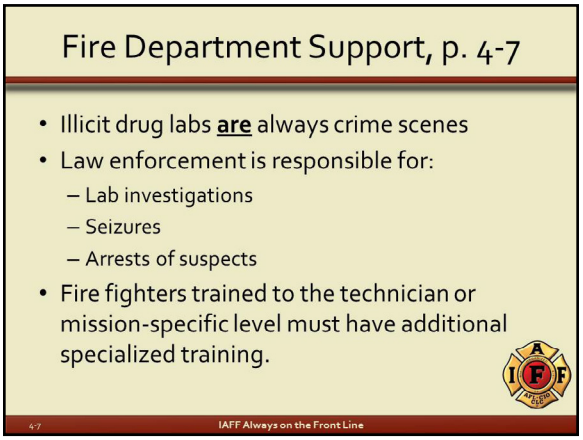
Slide 4-6

Implement the Planned Response

- Conduct decontamination of:
  - Suspects
  - First Responders
  - Tactical Entry Team
  - Hazardous Materials Response Team Members
  - Lab Processing Team
- Identify atmospheric hazards through air monitoring and sampling.
- Perform rescue operations only after a risk/benefit analysis.
- Ventilate windows and doors using positive pressure blowers and consider the following questions:
  - Are there flammable/explosive hazards?
  - Is the area intrinsically safe?
- Mitigate hazardous conditions only if they pose a threat to the public or responders.
- Coordinate with law enforcement investigation and preserve evidence.
- Provide emergency medical care.
- Document all scene activities and personnel present.

Figure 4-1.




Fire Department Support, p. 4-7
• Illicit drug labs are always crime scenes
• Law enforcement is responsible for:
– Lab investigations
– Seizures
– Arrests of suspects
• Fire fighters trained to the technician or mission-specific level must have additional specialized training.
4-7
IAFF Always on the Front Line

Slide 4-7

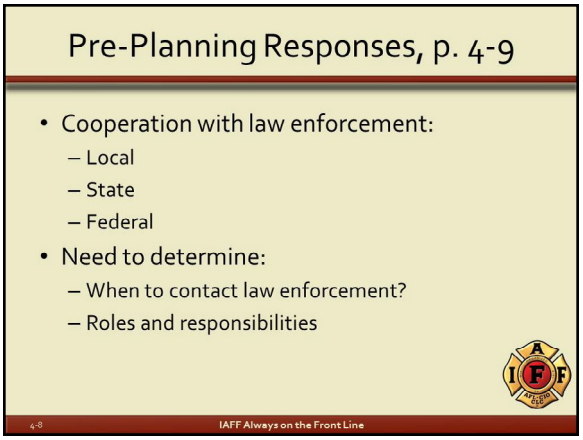
Fire Department Support

Because all illicit drug labs are crime scenes, law enforcement typically has primary jurisdiction over the scene. Lab investigations, seizures and arrests of suspects are all law enforcement or police matters. However, fire fighters are actively involved in responding to illicit drug labs.

Up to 30% of all illicit drug labs are discovered by fire fighters, usually after they ignite or explode (Holton, 2001). Fire fighters also discover illicit drug labs when called to investigate strange odors. Fire fighters discover many labs during the overhaul stage of structure fires. The fire department may also be called to assist law enforcement on a planned raid. In these situations, the role of the fire department is typically limited to fire control, decontamination and emergency medical care.

Members trained to the technician level or mission-specific air monitoring level may take the role of air monitoring, container assessment, segregating incompatible chemicals and containment of leaking chemicals that pose a threat to people or the environment. Members trained to the technician level must have additional specialized training in the mitigation of illicit labs or mission-specific illicit labs level. Some hazardous materials response teams take an even larger role in collecting samples for evidence or field testing.

When fire fighters discover an illicit drug lab, or find a clue that indicates there may be a lab nearby, they should contact local law enforcement (and/or other designated government agencies) immediately. Your department should have an SOP/SOG for response to illicit drug labs (see Appendix G for an example). Most departments require fire fighters to pursue a defensive, exterior attack when a lab is on fire. This minimizes responders' exposures to hazardous chemicals and booby traps. A defensive attack also protects the chain of evidence so law enforcement can pursue criminal charges. During overhaul, make sure you do not disturb or destroy any evidence.


Pre-Planning Responses, p. 4-9
• Cooperation with law enforcement:
– Local
– State
– Federal
• Need to determine:
– When to contact law enforcement?
– Roles and responsibilities
4-8
IAFF Always on the Front Line

Slide 4-8

Pre-Planning Responses

Pre-planning responses with law enforcement agencies is key in determining exactly what roles each agency will play at illicit drug labs. Attempting to determine these tasks during a response is less than ideal. It may lead to frustration and shortcuts being taken in the mitigation of the lab. Conduct an assessment of what capabilities each agency has in dealing with the specific tasks that must be accomplished to mitigate the illicit lab safely. For some tasks, the law enforcement agency will have subject matter expertise, and for others the fire department will have subject matter expertise. Areas of weakness can be identified along with solutions to overcome them.

The following are some key tasks that may be identified during pre-planning:

- Does your local law enforcement agency have a tactical entry team to make initial entry to secure the lab with proper PPE including SCBA? If not, identify what agency does.
- Does your local law enforcement tactical team have specialized training and equipment to detect and mitigate booby traps? If not, identify what agency does.
- What agency will establish the control and evacuation zones?
- Will the fire department assist in a hazard assessment of the lab?
- Who will provide the technical health and safety information along with recommendations on hazards identified in the lab?
- Who will mitigate leaking, damaged or unstable containers that pose a threat to responders, citizens or the environment?
- How will decontamination be accomplished on the suspects of active labs, the tactical entry team and the lab response team that processes the lab?
- Who will perform decontamination?
- Do members of your fire department have proper training in identifying and securing evidence at illicit drug labs?

Participating in a Planned Raid, p. 4-11
• Fire department role
– Defensive position
– Stand-by during initial phases of raid
4-9
IAFF Always on the Front Line

Slide 4-9

Participating in a Planned Raid

When participating in a planned raid, the fire department's role may involve providing support in the forms of:

- Decontamination
- EMS standby and emergency medical assistance
- Back-up fire and explosion protection (with hose lines)
- Atmospheric monitoring of exposed buildings
- Ventilation of buildings containing explosive or toxic gases (possibly)

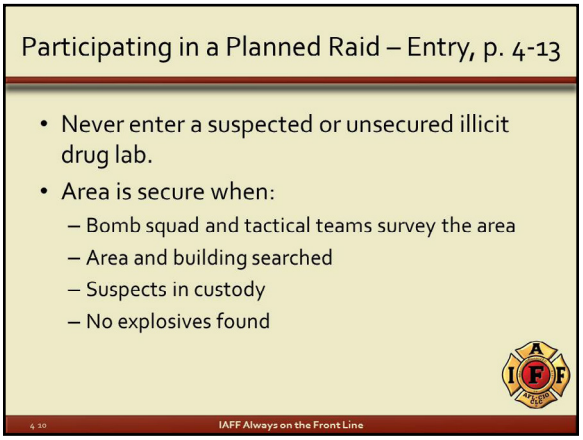
The fire department should be given advanced notice by any agency requesting assistance with a planned raid in order to schedule the hazardous materials response team. The agency requesting assistance must provide information on the location, time, staging area and the type of assistance that is needed. A pre-raid meeting between the agency and the appropriate duty officer should be scheduled to address the fire department's specific pre-assigned duties and safety concerns. This exchange of information, as well as radio communication, must be kept secure.

The fire department response should include a standby medical team at a nearby, but safely situated, staging area. Fire department personnel or equipment should not be used to search, handle or remove explosive devices or materials. Fire department personnel should remain staged until released by the police, or until fire or medical assistance is needed.

The nearest engine, ladder company, ambulance and command officer should be dispatched to assist the police department in accordance with your department's SOPs/SOGs. Fire department personnel should not announce bombs or explosives on the radio. Companies should receive such information directly via non-cellular telephone from dispatch headquarters.

Companies should stage at least 1/8 mile (or the distance specified in your department's SOP/SOG) from the incident. The first arriving unit must announce the staging location. In some cases, law enforcement designates a staging location. Fire department personnel should not turn off their radios or other communication devices. If law enforcement requests they do so, fire fighters should relocate to a safer location to prevent interference with police operations.

If law enforcement personnel do not have an assessment or processing team available in the immediate area to safely enter the lab and deactivate a reaction in process, they may request standby assistance from the fire department. The on-site law enforcement personnel may choose not to deactivate a reaction, due to the risk of fire and explosion. In either case, the fire department may provide defensive assistance in case of an uncontrolled chemical reaction.


Participating in a Planned Raid – Entry, p. 4-13
• Never enter a suspected or unsecured illicit drug lab.
• Area is secure when:
– Bomb squad and tactical teams survey the area
– Area and building searched
– Suspects in custody
– No explosives found
4-10
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Slide 4-10

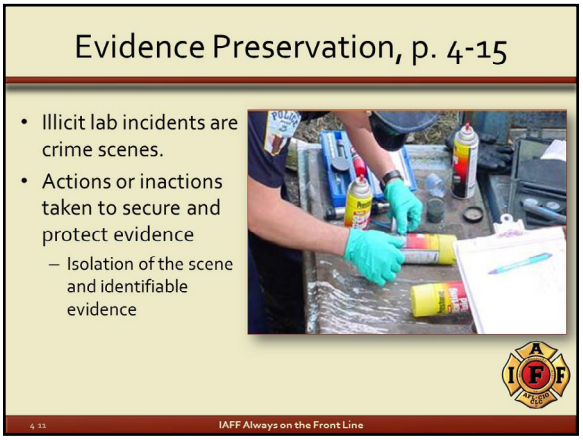
Participating in a Planned Raid

Entry

During a planned raid by law enforcement, fire department personnel should never enter a suspected or unsecured illicit drug lab. The area is considered secure only when the bomb squad and tactical teams survey the area, the area or building has been searched, all suspects are in custody and no explosives are found. Fire department personnel may enter a secured drug lab if an emergency hazmat situation develops, and entry will not jeopardize the safety of fire department personnel.

Disposal of Waste and Explosive Devices

Due to the many hazardous chemicals involved, all debris and runoff should be considered hazardous waste. Diking may be necessary. At a planned raid, law enforcement is normally responsible for proper disposal of hazardous waste. At such lab seizures, the lead law enforcement agency becomes the generator of hazardous wastes under law. Typically, fire departments are not responsible for waste disposal. However, fire department personnel should be aware of the need to minimize and contain runoff. If explosive devices are found, law enforcement may request standby assistance from the fire department while they disarm or remove the device.


Evidence Preservation, p. 4-15
• Illicit lab incidents are crime scenes.
• Actions or inactions taken to secure and protect evidence
– Isolation of the scene and identifiable evidence
4.11
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Slide 4-11

Evidence Preservation

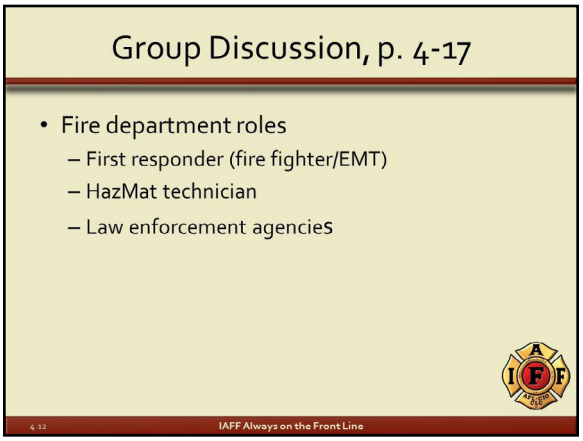
Illicit lab incidents, by definition, are crime scenes. Physical evidence that is recognized and preserved, provides objective and reliable information about an incident. It may even play a major role in the apprehension of suspects, as well as the judicial process.

Evidence preservation refers to those actions or inactions taken by first responders to secure and protect evidence. It is vital for first responders to know the procedures for evidence preservation BEFORE an incident occurs. The procedures for evidence preservation should be included in the local emergency response plan or SOPs/SOGs.

Generally, first responders will only be responsible for establishing a means of evidence preservation by isolating the scene and any identifiable evidence. Sampling and collection of evidence is usually performed by specially trained law enforcement personnel. In some jurisdictions, first responders may receive mission-specific training which allows them to assist with evidence collection under the supervision of law enforcement or hazmat technicians.

Figure 4-2.

Shown is law enforcement processing evidence at an illicit drug lab.


Group Discussion, p. 4-17
• Fire department roles
– First responder (fire fighter/EMT)
– HazMat technician
– Law enforcement agencies
4-12
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Slide 4-12

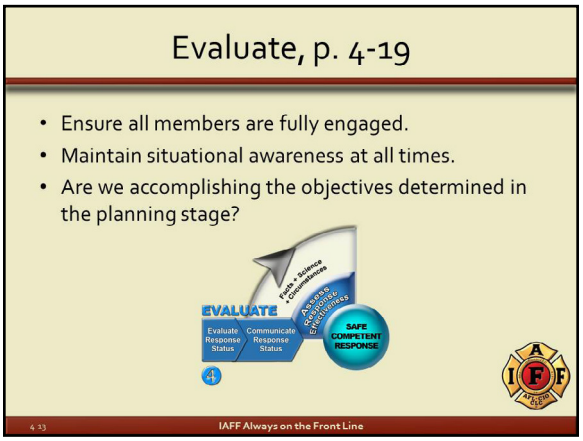
Activity: Group Discussion of Fire Department Roles

*As a group discussion, list the roles of the following responders at the scene of an illicit drug lab in **your** jurisdiction.*

- ***First Responder – Fire Fighter/Emergency Medical Technician***

- ***Hazmat Technician***

- ***Law Enforcement***


Evaluate, p. 4-19
• Ensure all members are fully engaged.
• Maintain situational awareness at all times.
• Are we accomplishing the objectives determined in the planning stage?
EVALUATE
Evaluate Response Status
Communicate Response Status
Assess Response Effectiveness
Facts + Science + Circumstances
SAFE COMPETENT RESPONSE
4
4-33
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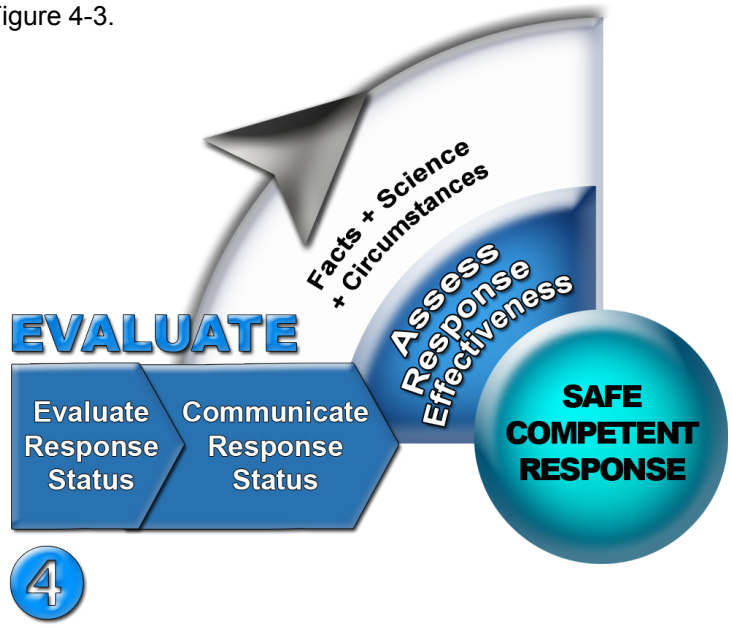
Slide 4-13

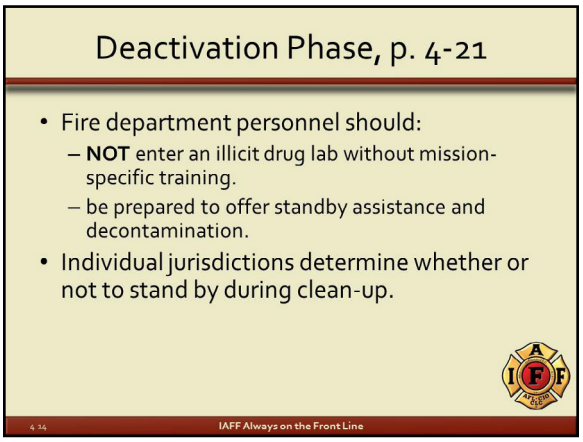
Evaluate

At an incident, evaluation must take place continually, and responders may need to adjust their strategies based on changing circumstances. For example, they may need to take a defensive, or non-intervention strategy, as opposed to an offensive strategy. Consider the following when evaluating:

- Ensure all members are fully engaged.
- Maintain situational awareness at all times.
- Consider progress and outcomes—are we accomplishing the objectives determined in the planning stage?
- Recycle through APIE process.
- Revise the plan as necessary.
- Communicate incident status.
- Adjust strategies and tactics if necessary.

Figure 4-3.




Deactivation Phase, p. 4-21
• Fire department personnel should:
– NOT enter an illicit drug lab without mission-specific training.
– be prepared to offer standby assistance and decontamination.
• Individual jurisdictions determine whether or not to stand by during clean-up.
4-14
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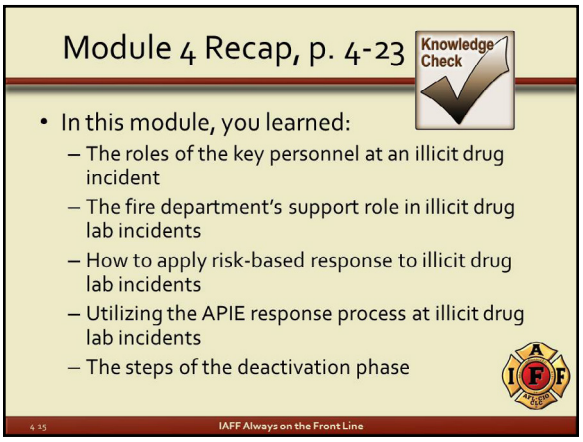
Slide 4-14

Deactivation Phase

Fire department personnel should not enter an illicit drug lab without mission-specific training. Fire departments should be prepared to offer standby assistance (in case of fire or explosion) and decontamination, while law enforcement assesses and shuts down the lab. This includes basic EMS support for law enforcement personnel who may be injured during deactivation. The decision whether or not to stand by during cleanup must be made by individual jurisdictions.

Table 4-1.

Deactivation Phase	Duration	Fire Dept. on Site?	Tasks
Assessment and Shutdown: A specially trained chemist observes the scene, determines the type of reaction and discontinues the reaction. If a chemist cannot be brought to the scene in a reasonable amount of time, and it appears that a reaction is in progress, law enforcement personnel experienced in deactivating drug labs may describe the lab to a chemist via telephone and receive shutdown instructions.	30 – 90 minutes	Yes	Provide fire control, decontamination, EMS, technical information on hazardous substances and air monitoring
Processing: Law enforcement personnel photograph the scene, take chemical samples and collect other evidence. Since chemicals are still being handled, EMS and fire suppression personnel should be on site.	1 – 6 hours	Yes	Same as above, plus containing leaking materials that pose a threat to responders and public
Cleanup: Under a chemist's on-site supervision, personnel package and remove chemicals and contaminated materials. The duration of cleanup depends on the number and amount of chemicals present. The start of cleanup may be delayed if a chemist is not able to respond to the site immediately. The DEA has chemists who should be able to respond within three hours to any location in the US.	At least 2 hours	Optional – depends on the jurisdiction	



Slide 4-15

Slide 4-16

Recap

In this module you learned:

- The fire department's support role in illicit drug lab incidents
- Roles of the following personnel at the scene of illicit drug lab incidents:
    - First Responder - Fire Fighter/Emergency Medical Technician
    - Hazmat Technician
    - Law Enforcement Agencies
- How to apply risk-based response to illicit drug lab incidents
- Utilizing the APIE Process at illicit drug lab incidents
- The steps of the deactivation phase

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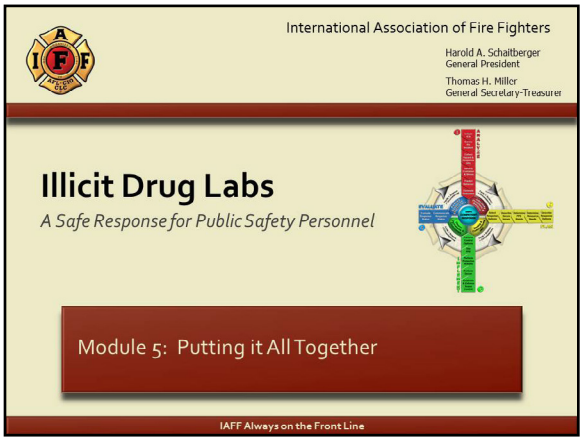
Module 5 – Putting it All Together

Section	Time (Min)	Page
Module 5 - Learning Objectives	2	5-3
APIE Review	3	5-4
Case Study Activity Overview	30	5-7
Case Study 1: Fire Response		5-9
Case Study 2: Chemical Odor Response - Apartment		5-15
Case Study 3: Residential Explosion		5-21
Case Study 4: Suspected Drug Lab		5-27
Recap	3	5-35
Course Recap	7	5-35
Total Time	**45 min.**	



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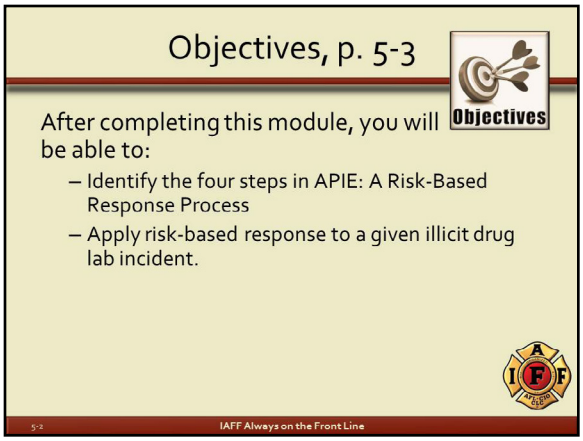
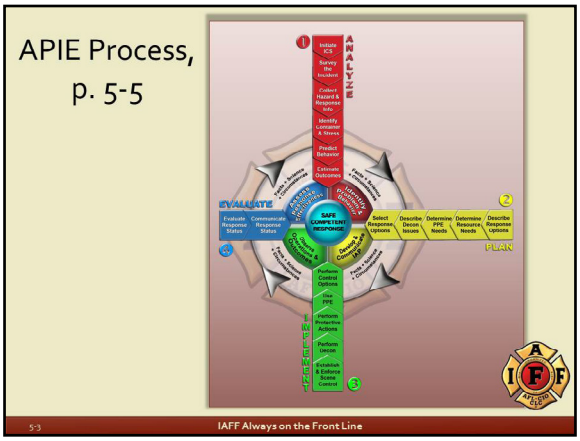


Slide 5-2

Module 5 - Learning Objectives

After completing this module you will be able to

- Identify the four steps in APIE: A Risk-Based Response Process.
- Apply risk-based response to a given illicit drug lab incident scenario.


APIE Process,
p. 5-5
ANALYZE
PLAN
IMPLEMENT
EVALUATE
SAFE COMPETENT RESPONSE
5-3
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Slide 5-3

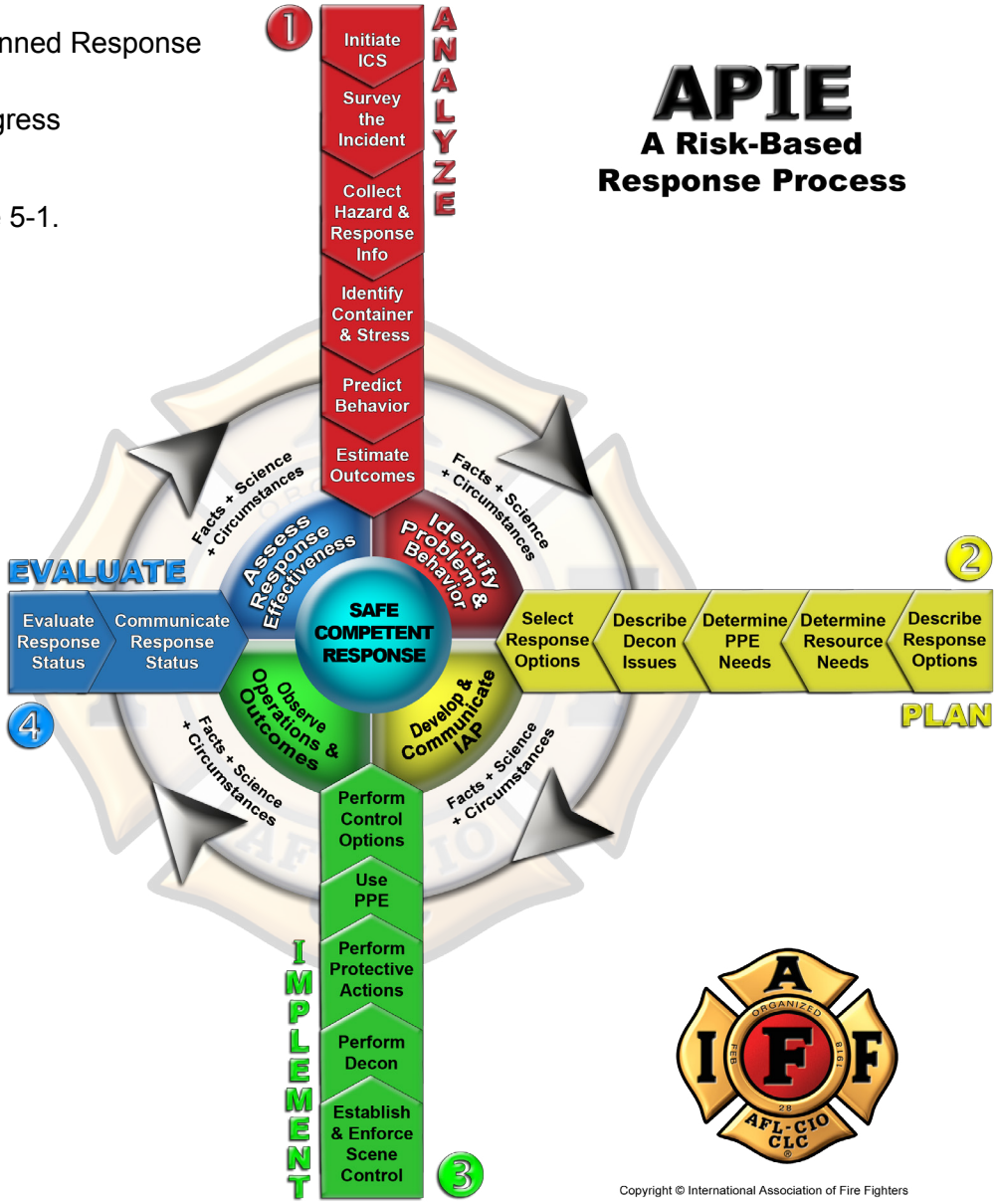
APIE Review

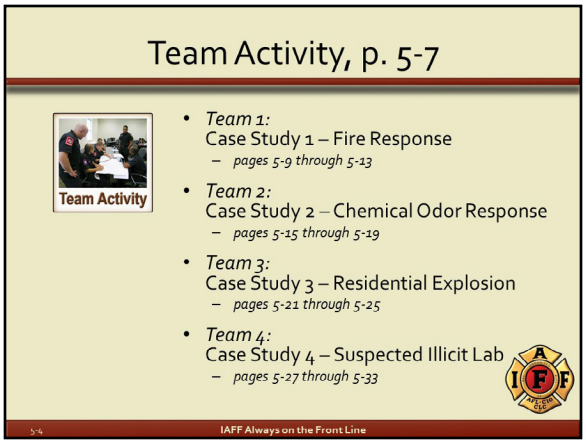
All actions taken at the scene of an illicit drug lab must be deliberate and planned with safety in mind. Every effort must be made to obtain and evaluate all available information concerning the incident before any actions are taken.

Always follow the basic A-P-I-E response principle:

- **Analyze** the Incident
- **Plan** the Response
- **Implement** the Planned Response
- **Evaluate** Your Progress

Figure 5-1.




Team Activity, p. 5-7
Team Activity
Team 1:
Case Study 1 – Fire Response
– pages 5-9 through 5-13
Team 2:
Case Study 2 – Chemical Odor Response
– pages 5-15 through 5-19
Team 3:
Case Study 3 – Residential Explosion
– pages 5-21 through 5-25
Team 4:
Case Study 4 – Suspected Illicit Lab
– pages 5-27 through 5-33
5-4
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Slide 5-4

Case Study Activity Overview

Work with your team to review your assigned case study then answer the questions at the end of each case study. You will report back to the group when you are finished.

Team #1 – Case Study 1: Fire Response

Pages 5-9 to 5-13

Team #2 – Case Study 2: Chemical Odor Response

Pages 5-15 to 5-19

Team #3 – Case Study 3: Residential Explosion

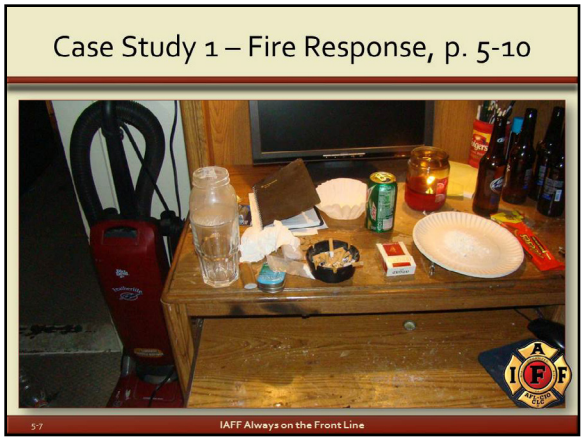
Pages 5-21 to 5-25

Team #4 – Case Study 4: Suspected Drug Lab

Pages 5-27 to 5-33

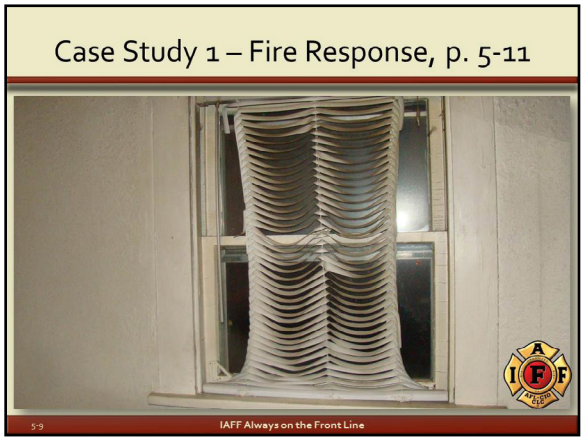
Slide 5-5

Slide 5-6



Slide 5-7

Slide 5-8



Slide 5-9

Case Study 1: Fire Response

With members of your team, review Case Study 1 on pages PG 5-9 through PG 5-13 and answer questions on page PG 5-13.

Your company is the first due engine on the initial response to a report of a fire in a second floor apartment. The hallway has moderate smoke condition. The apartment door is forced open. You find small separate fires in the living room and a fire in the bathroom shower/tub. There are no occupants in the apartment. As the fires are extinguished your crew identifies items consistent with an illicit lab.

Figure 5-2.

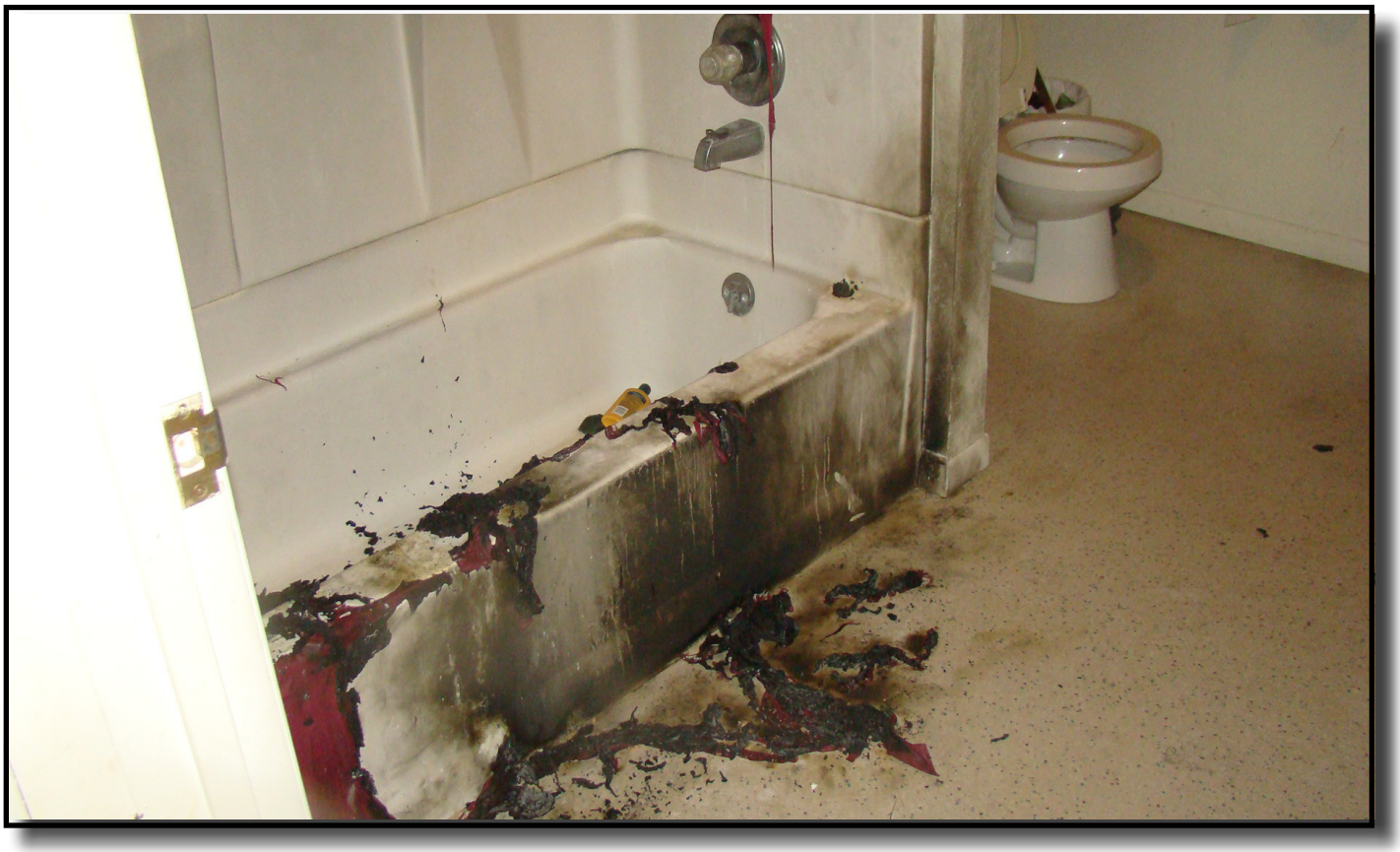


Figure 5-3.

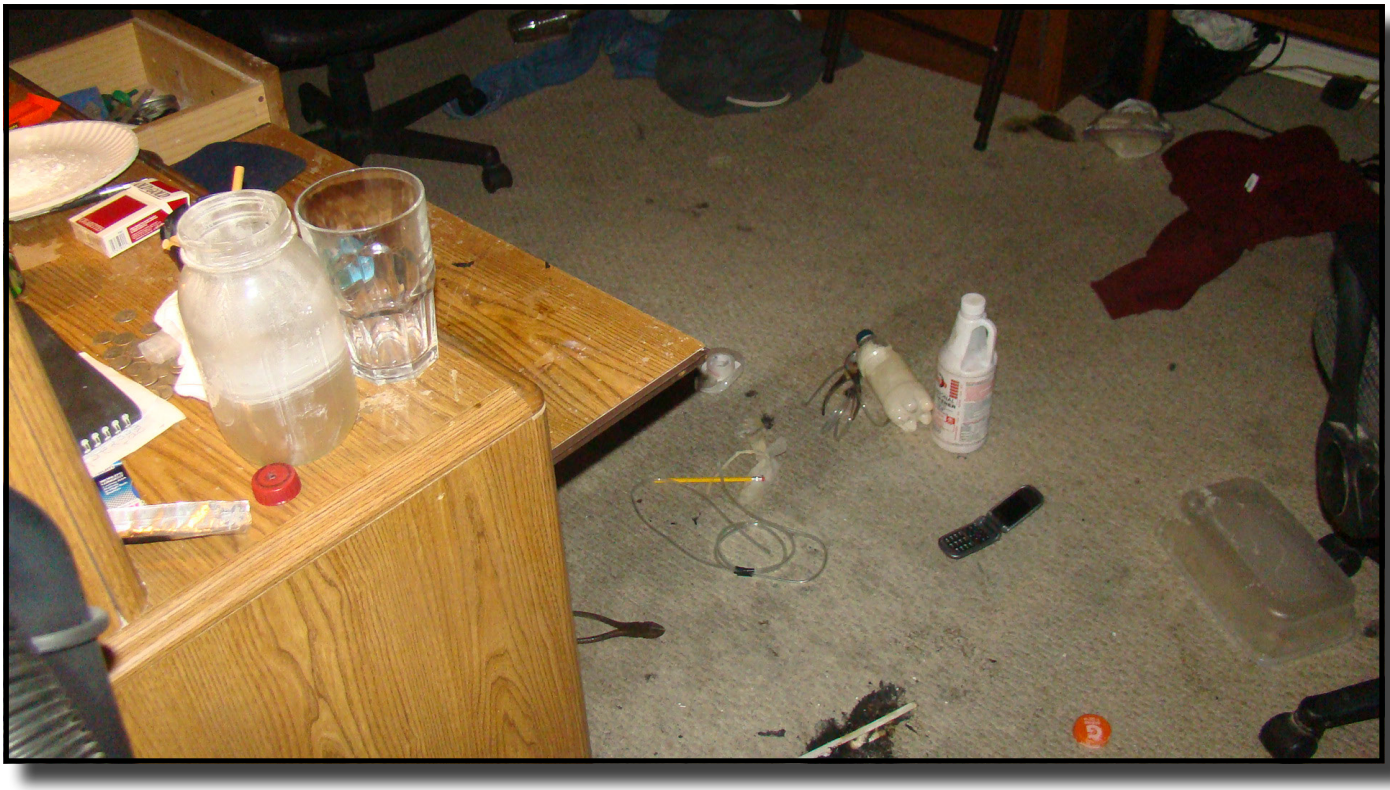


Figure 5-4.

Figure 5-5.

Figure 5-6.

Case Study 1: Fire Response

With members of your team, complete the questions below using the information on pages 5-9 through 5-11. You should give a short description of your case study along with the questions and answers. Slides 5-5 through 5-9 include the photos from the case study.

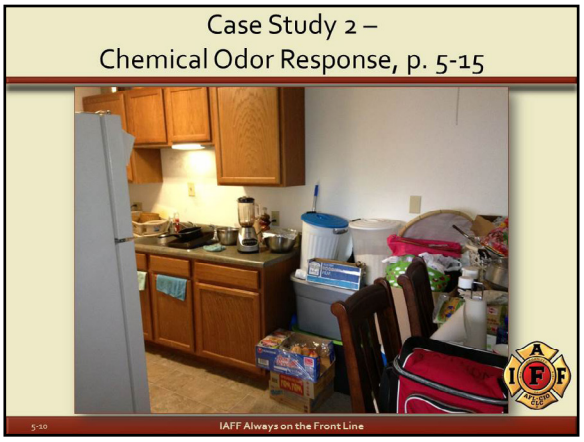
1. ***What items in the scene photographs can you identify as potential evidence?***

2. ***What types of hazards are present?***

3. ***What PPE do you recommend for this incident? Why?***

Case Study 2: Chemical Odor Response - Apartment

(Slides 5-10 through 5-13)



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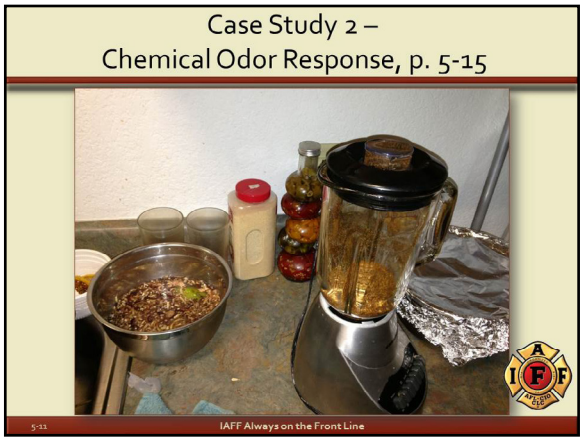

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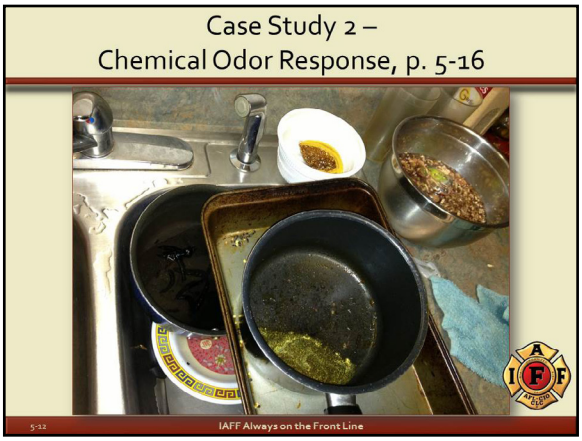

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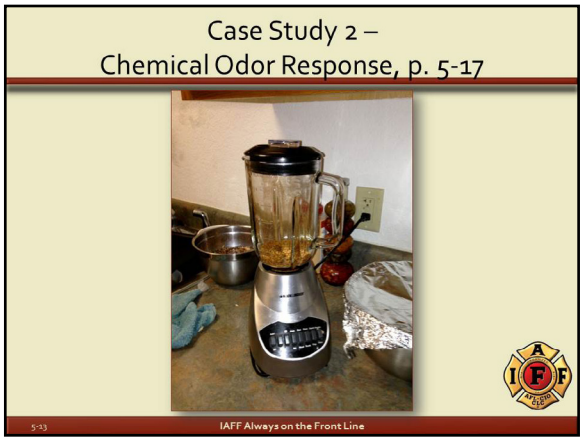


Slide 5-13

Case Study 2: Chemical Odor Response - Apartment

With members of your team, review Case Study 2 on pages 5-15 through 5-17 and answer questions on page 5-19.

The fire department was called to check a chemical odor in a three-story garden style wood frame apartment complex. The calling party was the maintenance worker who initially thought it was a freon leak. The maintenance worker indicated he has fixed the freon leaks before and he thought it smelled like it. However, whatever this odor was, it “choked” him out. Several people complained of difficulty breathing and burning throat.

An additional engine and truck company were called for possible search and decon issues.

Readings were taken for pH, fluorine, polymerization, flammability, corrosivity and radiation. The detection devices showed no readings. One fire fighter who was exposed to the odor began to have difficulty breathing. There was concern and speculation it was an illicit drug lab.

Figure 5-7.

Figure 5-9.

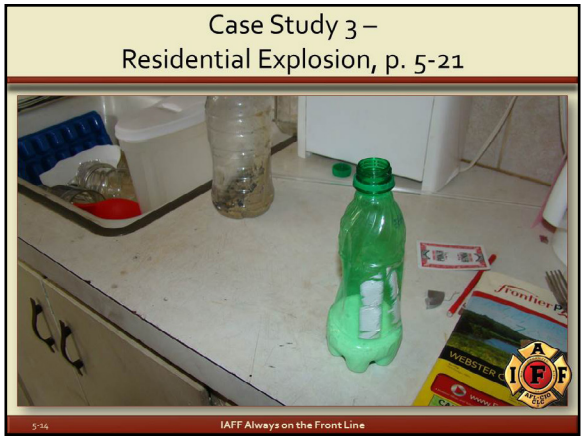
Figure 5-10.

Figure 5-11.

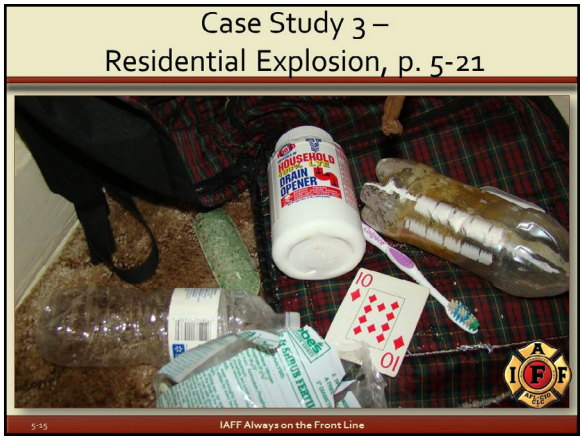
Case Study 2: Chemical Odor Response

With members of your team, complete the questions below using the information on pages 5-15 through 5-17. You should give a short description of your case study, along with the questions and answers. Slides 5-10 through 5-13 include the photos from the case study.

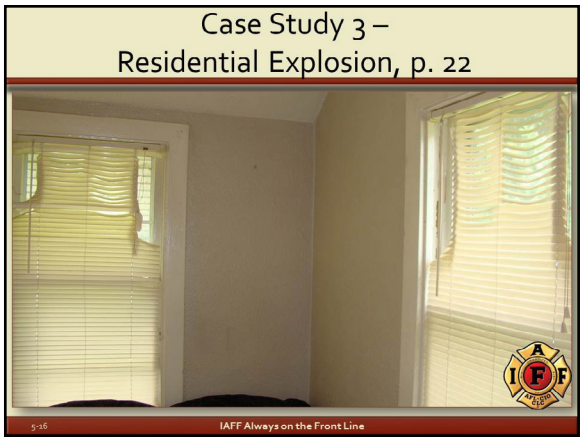
1. ***Identify the***
   - ***Facts***
   - ***Science***
   - ***Circumstances***
2. ***Based on the facts, science and circumstances, what PPE do you recommend for this incident?***
3. ***What items in the scene photographs can you identify as clues?***



Slide 5-14



Slide 5-15



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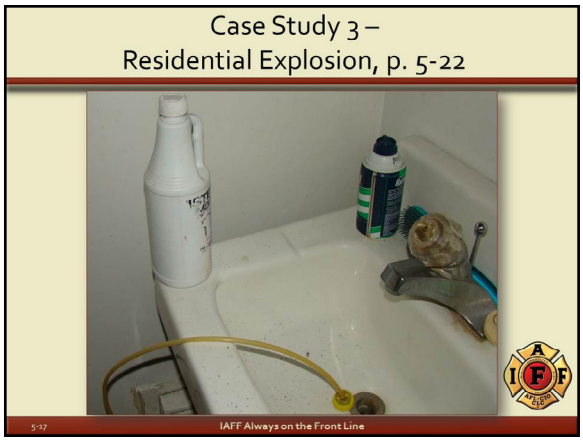
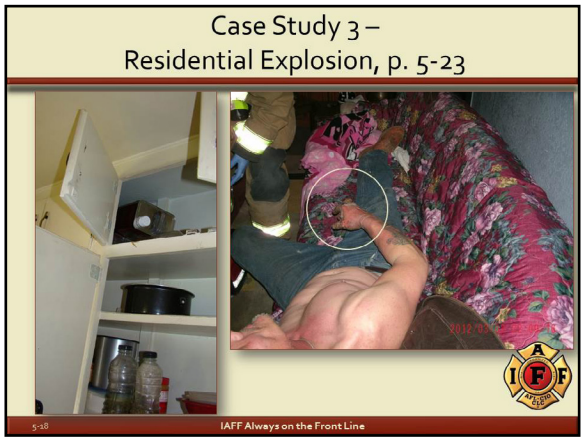


Slide 5-17



Slide 5-18

Case Study 3: Residential Explosion

With members of your team, review Case Study 3 on pages 5-21 through 5-23 and answer questions on page 5-25.

Your engine company is the first due on the initial response to a report of an explosion in a residence. Upon your arrival you are informed of an adult male with burns in the occupancy next door. You extinguish a fire in the kitchen area, and during ventilation you find items that are consistent with an illicit lab. The male subject has burns to his hands and arms.

Figure 5-11.

Figure 5-12.

Figure 5-13.

Figure 5-14.

Figure 5-15.

Figure 5-16.

The lab cook suffered burns to his hand during the explosion.

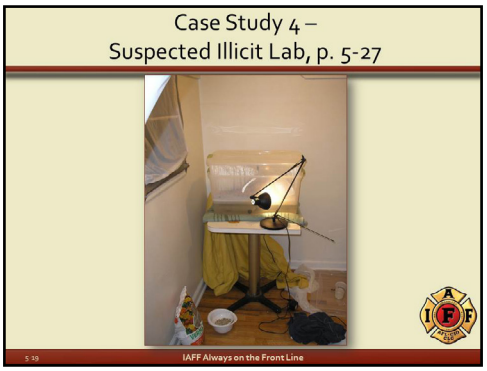
Case Study 3: Residential Explosion

With members of your team, complete the questions below using the information on pages 5-21 through 5-23. You should give a short description of your case study along with the questions and answers. Slides 5-14 through 5-18 include the photos from the case study.

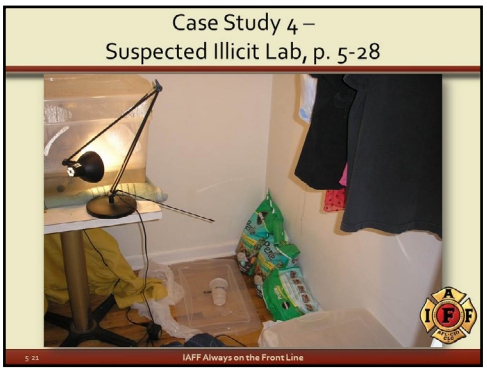
1. ***What items in the scene photographs can you identify as potential evidence?***

2. ***What steps would you take to secure the evidence?***

3. ***What law enforcement agency would you contact and coordinate within your jurisdiction?***



Slide 5-19



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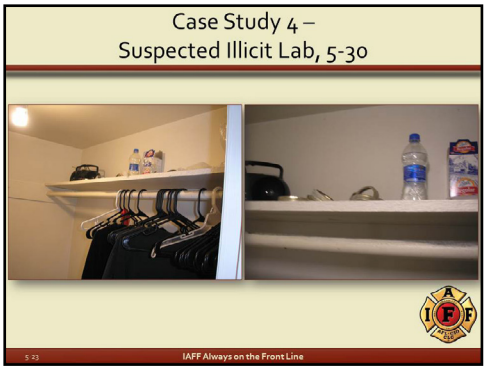

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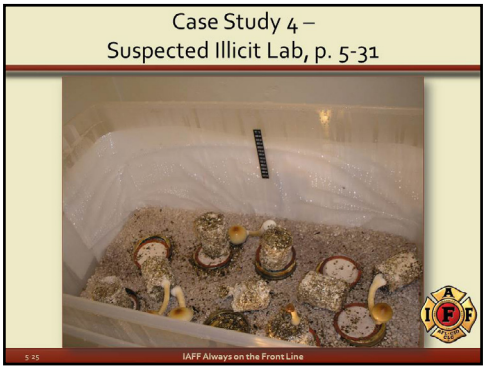


Slide 5-25

Slide 5-20

Slide 5-22

Slide 5-24

Case Study 4: Suspected Drug Lab

With members of your team, review Case Study 4 on pages 5-27 through 5-31 and answer questions on page 5-33.

Residents at a local apartment complex called 911 due to a lot of activity, and what they believed was drug usage in an adjacent apartment. The police department responded and found the occupants had previous records of drug usage. The occupants stated they would not make any comment and were not forthcoming with information. The police department began to search the apartment and saw what they believed to be some type of illicit drug lab. The fire department was called to monitor the atmosphere for any hazards.

Atmospheric monitoring readings did not show any flammability, corrosive vapors, oxygen issues or radiation above background levels. The temperature gun showed elevated ambient temperatures on the Tupperware container.

Figure 5-17.

Figure 5-18.

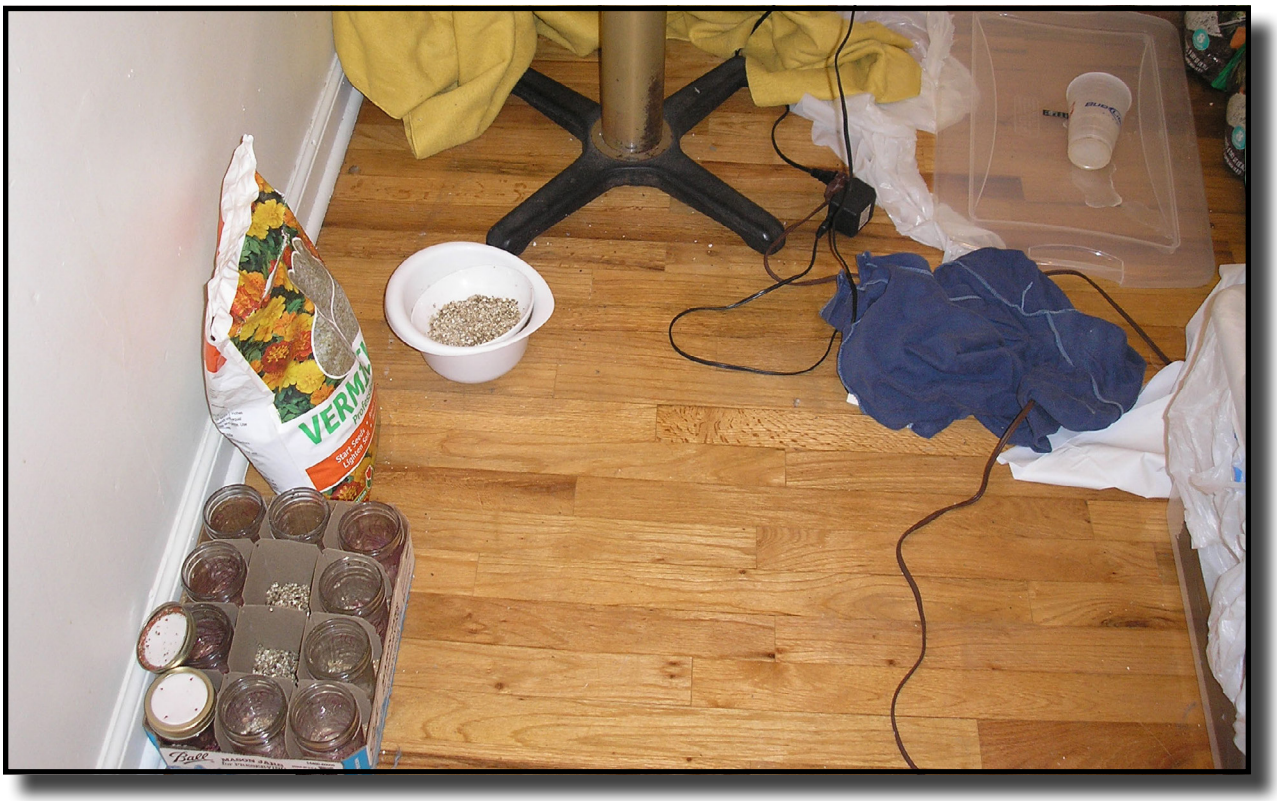


Figure 5-19.

Figure 5-20.

Figure 5-21.

Figure 5-22.

Figure 5-23.

Case Study 4: Suspected Drug Lab

With members of your team, complete the questions below using the information on pages 5-27 through 5-31. You should give a short description of your case study along with the questions and answers. Slides 5-19 through 5-25 include the photos from the case study.

1. ***What items in the scene photographs can you identify as clues?***

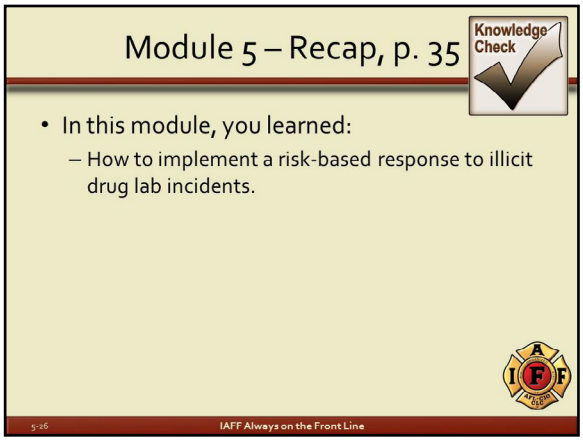
2. ***Identify the following:***

   Fact

   Science

   Circumstance

3. ***What hazards are present in this incident ?***



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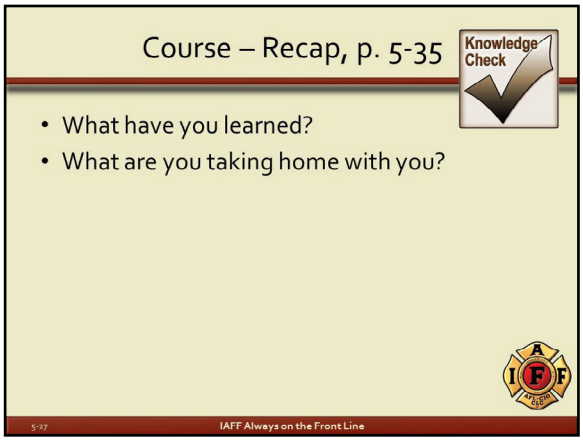
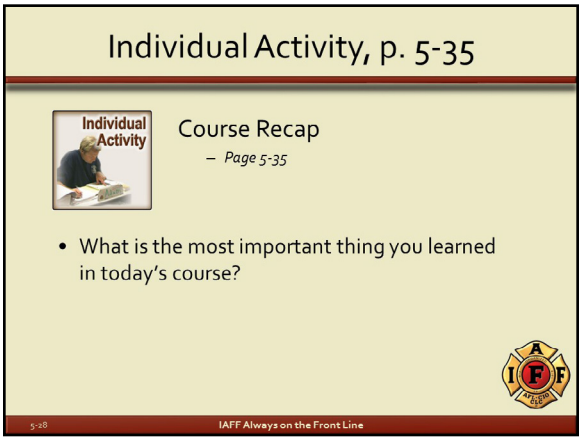


Slide 5-27



Slide 5-28

Case Studies 2 and 4 Post Incident Summary

Case Study 2 - Chemical Odor Response

The fire department crews investigated every locked apartment and found chili peppers. The occupant was cooking with chili peppers. With the ceiling fan along with the natural ventilation of an open window, the odor and gas from them spread through the complex. The crews radioed back they found that it was the capsaicin in the chili peppers that resulted in the respiratory issues, not a meth lab.

Case Study 4 - Suspected Drug Lab

Upon the investigation it was discovered that the occupants were growing mushrooms. It was determined that the mushrooms would be pulled and dried out for disposal.

Module 5 Recap

In this module you learned:

- How to implement risk-based response to illicit drug lab incidents

Course Recap

In this course you learned:

- How to implement risk-based response to illicit drug lab incidents
    - Types, categories and distribution of illicit drug labs
    - Common locations for illicit drug labs
    - Clues to help you recognize possible drug labs
    - Hazards at illicit drug labs
    - Safety procedures and tactical guidelines
    - Hazardous and safe actions for responders at illicit drug labs
    - Overview and selection of personal protective equipment (PPE)
    - Tactics to be used based on mission-specific operation
    - Selection of detectors
    - Decontamination of suspects and evidence
    - Fire department support
    - Evidence preservation
    - Entry
    - Disposal of waste and explosive devices
    - Deactivation phase

Individually, write down what you consider the most important thing you learned in today's course. Share it with your team.

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Appendices

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Appendix A

U.S. Drug Enforcement Administration Methamphetamine Lab Seizures by Type, December 2012

State	Chemical/ Glass/ Equipment	Dumpsite	Laboratory	Total
Alabama	19	25	156	200
Alaska	0	0	1	1
Arizona	0	1	9	10
Arkansas	25	26	62	113
California	17	25	113	155
Colorado	1	3	12	16
Connecticut	0	0	3	3
Delaware	2	2	6	10
Florida	43	24	218	285
Georgia	7	6	48	61
Idaho	0	1	3	4
Illinois	146	96	571	813
Indiana	368	64	955	1,387
Iowa	27	175	185	387
Kansas	18	57	68	143
Kentucky	39	148	738	925
Louisiana	9	8	41	58
Maine	0	1	9	10
Maryland	0	0	1	1
Massachusetts	0	0	3	3
Michigan	66	97	320	483
Minnesota	1	1	4	6
Mississippi	0	1	4	5
Missouri	379	550	919	1,848
Montana	2	2	3	7

State	Chemical/ Glass/ Equipment	Dumpsite	Laboratory	Total
Nebraska	3	1	5	9
Nevada	0	0	3	3
New Hampshire	4	0	11	15
New Jersey	0	0	2	2
New Mexico	1	1	16	18
New York	2	37	111	150
North Carolina	103	131	218	452
North Dakota	3	6	6	15
Ohio	67	123	434	624
Oklahoma	18	307	339	664
Oregon	3	0	9	12
Pennsylvania	13	23	59	95
Rhode Island	0	0	1	1
South Carolina	28	58	267	353
South Dakota	2	2	7	11
Tennessee	24	339	1,197	1,560
Texas	7	4	21	32
Utah	1	0	1	2
Vermont	1	0	2	3
Virginia	16	35	154	205
Washington	1	5	4	10
West Virginia	11	6	41	58
Wisconsin	2	3	24	29
Wyoming	4	1	2	7
Totals	1,483	2,395	7,386	11,264

Source: El Paso Intelligence Center (EPIC) National Clandestine Laboratory Seizure System, December 31, 2012.

Appendix B
Controlled Substances Act

From Wikipedia, The Free Encyclopedia

The Controlled Substances Act (CSA) was enacted into law by the Congress of the United States as Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970 (21 USC 13). The CSA is the legal basis by which the manufacture, importation, possession, and distribution of certain drugs are regulated by the federal government of the United States. The Act also served as the national implementing legislation for the Single Convention on Narcotic Drugs.

The legislation created five Schedules (classifications), with varying qualifications for a drug to be included in each. Two federal departments, the Department of Justice and the Department of Health and Human Services (which includes the Food and Drug Administration) determine which drugs are added or removed from the various schedules; though the statute passed by Congress created the initial listing. Classification decisions are required to be made on the criteria of potential for abuse, accepted medical use in the United States, and potential for addiction.

The Department of Justice is also the executive agency in charge of federal law enforcement (i.e. it is the federal police force). State governments also regulate certain drugs.

Enforcement Authority

Proceedings to add, delete, or change the schedule of a drug or other substance may be initiated by the Drug Enforcement Administration (DEA), the Department of Health and Human Services (HHS), or by petition from any interested party, including the manufacturer of a drug, a medical society or association, a pharmacy association, a public interest group concerned with drug abuse, a state or local government agency, or an individual citizen. When a petition is received by the DEA, the agency begins its own investigation of the drug.

The DEA also may begin an investigation of a drug at any time based upon information received from law enforcement laboratories, state and local law enforcement and regulatory agencies, or other sources of information.

Once the DEA has collected the necessary data, the DEA Administrator, by authority of the Attorney General, requests from the HHS a scientific and medical evaluation and recommendation as to whether the drug or other substance should be controlled or removed from control. This request is sent to the Assistant Secretary of Health of the HHS. Then, the HHS solicits information from the Commissioner of the Food and Drug Administration and evaluations and recommendations from the National Institute on Drug Abuse, and on occasion, from the scientific and medical community at large. The Assistant Secretary, by authority of the Secretary, compiles the information and transmits back to the DEA a medical and scientific evaluation regarding the drug or other substance, a recommendation as to whether the drug should be controlled, and in what schedule it should be placed.

The medical and scientific evaluations are binding to the DEA with respect to scientific and medical

matters. The recommendation on scheduling is binding only to the extent that if HHS recommends that the substance not be controlled, the DEA may not control the substance.

Once the DEA has received the scientific and medical evaluation from HHS, the Administrator will evaluate all available data and make a final decision whether to propose that a drug or other substance be controlled and into which schedule it should be placed.

Under certain circumstances, the Government may temporarily schedule a drug without following the normal procedure. An example is when international treaties require control of a substance. In addition, 21 U.S.C. § 811(h) allows the Attorney General to temporarily place a substance in Schedule I "to avoid an imminent hazard to the public safety." Thirty days' notice is required before the order can be issued, and the scheduling expires after a year; however, the period may be extended six months if rulemaking proceedings to permanently schedule the drug are in progress. In any case, once these proceedings are complete, the temporary order is automatically vacated.

The CSA also creates a closed system of distribution for those authorized to handle controlled substances. The cornerstone of this system is the registration of all those authorized by the DEA to handle controlled substances. All individuals and firms that are registered are required to maintain complete and accurate inventories and records of all transactions involving controlled substances, as well as security for the storage of controlled substances.

History

Since its enactment in 1970, the Act has been amended several times:

- The Psychotropic Substances Act of 1978 added provisions implementing the Convention on Psychotropic Substances.
- The Controlled Substances Penalties Amendments Act of 1984.
- The Chemical Diversion and Trafficking Act of 1988 added provisions implementing the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.
- The Domestic Chemical Diversion and Control Act of 1993.
- The Federal Analog Act.

International Law

The Congressional findings in 21 U.S.C. § 801(7), 21 U.S.C. § 801(a)(2), and 21 U.S.C. § 801(a)(3) state that a major purpose of the CSA is to "enable the United States to meet all of its obligations" under international treaties - specifically, the 1961 Single Convention on Narcotic Drugs and the 1971 Convention on Psychotropic Substances. The CSA bears many resemblances to these Conventions. Both the CSA and the treaties set out a system for classifying controlled substances in several Schedules in accordance with the binding scientific and medical findings of a public health authority. Under 21 U.S.C. § 811 of the CSA, that authority is the Secretary of Health and Human Services (HHS). Under Article 3 of the Single Convention and Article 2 of the Convention on Psychotropic Substances, the World Health Organization is that authority.

21 U.S.C. § 811(d) provides for automatic compliance with treaty obligations and establishes mechanisms for amending international drug control regulations to correspond with HHS findings on scientific and medical issues. If control of a substance is mandated by the Single Convention, the Attorney General is required to "issue an order controlling such drug under the schedule he deems most appropriate to carry out such obligations," without regard to the normal scheduling procedure or the findings of the HHS Secretary. However, the Secretary has great influence over any drug scheduling proposal under the Single Convention, because 21 USC § 811(d)(2)(B) requires the Secretary the power to "evaluate the proposal and furnish a recommendation to the Secretary of State which shall be binding on the representative of the United States in discussions and negotiations relating to the proposal."

Similarly, if the UN Commission on Narcotic Drugs adds or transfers a substance to a Schedule established by the Convention on Psychotropic Substances, so that current U.S. regulations on the drug do not meet the treaty's requirements, the Secretary is required to issue a recommendation on how the substance should be scheduled under the CSA. If the Secretary agrees with the Commission's scheduling decision, he can recommend that the Attorney General initiate proceedings to reschedule the drug accordingly. If the HHS Secretary disagrees with the UN controls, however, the Attorney General must temporarily place the drug in Schedule IV or V (whichever meets the minimum requirements of the treaty) and exclude the substance from any regulations not mandated by the treaty, while the Secretary is required to request that the Secretary of State take action, through the Commission or the UN Economic and Social Council, to remove the drug from international control or transfer it to a different Schedule under the Convention. The temporary scheduling expires as soon as control is no longer needed to meet international treaty obligations.

This provision was invoked in 1984 to place Rohypnol (flunitrazepam) in Schedule IV. The drug did not then meet the Controlled Substances Act's criteria for scheduling; however, control was required by the Convention on Psychotropic Substances. In 1999, an FDA official explained to Congress:

Rohypnol is not approved or available for medical use in the United States, but it is temporarily controlled in Schedule IV pursuant to a treaty obligation under the 1971 Convention on Psychotropic Substances. At the time flunitrazepam was placed temporarily in Schedule IV (November 5, 1984), there was no evidence of abuse or trafficking of the drug in the United States.

The Cato Institute's Handbook for Congress calls for repealing the CSA, an action that would likely bring the U.S. into conflict with international law. The exception would be if the U.S. were to claim that the treaty obligations violate the United States Constitution. Many articles in these treaties - such as Article 35 and Article 36 of the Single Convention - are prefaced with phrases such as "Having due regard to their constitutional, legal and administrative systems, the Parties shall . . ." or "Subject to its constitutional limitations, each Party shall . . ." According to former United Nations Drug Control Programme Chief of Demand Reduction Cindy Fazey, "This has been used by the USA not to implement part of article 3 of the 1988 Convention, which prevents inciting others to use narcotic or psychotropic drugs, on the basis that this would be in contravention of their constitutional amendment guaranteeing freedom of speech."

Constitutional Issues

Most of the Congressional findings and declarations in 21 U.S.C. § 801 are devoted to establishing the statute's constitutionality. Using similar language to Article I, Section 8 of the U.S. Constitution, the CSA

cites the impact of intrastate drug offenses on "interstate commerce" and the "general welfare" of the American people. However, David Boaz, executive director of the Cato Institute, claims that "The Tenth Amendment reserves to the states or the people all powers not granted to the federal government. At least the advocates of alcohol Prohibition had enough respect for the Constitution to seek a constitutional amendment to impose Prohibition, but Congress never asked the American people for the constitutional power to impose drug prohibition."

In 2003, the United States Court of Appeals for the Ninth Circuit ruled the CSA illegal as it applied to the use of medical marijuana in the case Raich v. Ashcroft, 352 F.3d 1222 (9th Cir. 2003). However, the case was appealed to the Supreme Court by the federal government, and in 2005, the Supreme Court ruled in favor of the federal government.

Drug Schedules

The below lists are incomplete. Consult the DEA Drug Scheduling Reference for a longer list.

21 U.S.C. §812(b) specifies the findings that the government must make in order to classify a drug in a certain schedule. The specific classification of any given drug is usually a source of controversy, as is the purpose and effectiveness of the entire regulatory scheme.

Schedule I Drugs

Findings required:

> *(A) The drug or other substance has a high potential for abuse.*
> *(B) The drug or other substance has no currently accepted medical use in treatment in the United States.*
> *(C) There is a lack of accepted safety for use of the drug or other substance under medical supervision.*
> *(D) The drug is not alcohol (ethanol) due to the failure of prohibition.*

Under the DEA's interpretation of the CSA, a drug does not necessarily have to have the same abuse potential as heroin or cocaine to merit placement in Schedule I (in fact, cocaine is currently a Schedule II drug):

> *When it comes to a drug that is currently listed in schedule I, if it is undisputed that such drug has no currently accepted medical use in treatment in the United States and a lack of accepted safety for use under medical supervision, and it is further undisputed that the drug has at least some potential for abuse sufficient to warrant control under the CSA, the drug must remain in schedule I. In such circumstances, placement of the drug in schedules II through V would conflict with the CSA since such drug would not meet the criterion of "a currently accepted medical use in treatment in the United States." 21 USC 812(b).*

Sentences for first-time, non-violent offenders convicted of trafficking in Schedule I drugs can easily turn into de facto life sentences when multiple sales are prosecuted in one proceeding. See United States

v. Angelos, 345 F. Supp. 2d 1227 (D. Utah 2004) (55 years for three sales of marijuana). Sentences for violent offenders are much higher.

Drugs on this schedule include:

- GHB (Gamma-hydroxybutyrate), which has been used as a general anesthetic with minimal side-effects and controlled action but a limited safe dosage range. It was placed in Schedule I in March 2000 after widespread recreational use;
- Ibogaine
- Cannabis (Marijuana). Cannabis has legal medical uses in some countries and U.S. states. Consequently, some controversy exists about its placement in Schedule I. Main article: Cannabis rescheduling in the United States;
- Dimethyltryptamine (DMT)
- Heroin (Diacetylmorphine), which is used in much of Europe as a potent pain reliever in terminal cancer patients. (It is about twice as strong, by weight, as morphine.)
- Ecstasy (3,4-methylenedioxymethamphetamine,MDMA), which continues to be used medically, notably in the treatment of post-traumatic stress disorder (PTSD). The FDA approved this PTSD use in 2001.
- Psilocybin, the active ingredient in magic mushrooms
- 5-MeO-DIPT;
- MDA (3,4-methylenedioxyamphetamine);
- Lysergic acid diethylamide
- Mescaline;
- Peyote;
- Methaqualone(Quaalude, Sopor, Mandrax);
- DOM 2,5-dimethoxy-4-methylamphetamine
- 2C-T-7
- 2C-B (Nexus)

Schedule II Drugs

Findings required:

> *(A) The drug or other substance has a high potential for abuse.*
> *(B) The drug or other substance has a currently accepted medical use in treatment in the United States or a currently accepted medical use with severe restrictions.*
> *(C) Abuse of the drug or other substances may lead to severe psychological or physical dependence.*

These drugs are only available by prescription, and distribution is carefully controlled and monitored by the DEA.

Drugs on this schedule include:

- Cocaine (used as a topical anesthetic);

- Methylphenidate (Ritalin);
- Most pure opioid agonists: Pethidine (INN) or meperidine (USAN), fentanyl, Hydromorphone, opium, oxycodone (the main ingredient in percocet and OxyContin), or morphine;
- Short-acting barbiturates, such as secobarbital;
- Amphetamines, except for injectable methamphetamine. Amphetamines were originally placed in Schedule III, but were moved to Schedule II in 1971. Injectable methamphetamine has always been in Schedule II;

Schedule III Drugs

Findings required:

> *(A) The drug or other substance has a potential for abuse less than the drugs or other substances in schedules I and II.*
> *(B) The drug or other substance has a currently accepted medical use in treatment in the United States.*
> *(C) Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.*

These drugs are available only by prescription, though control of wholesale distribution is somewhat less stringent than Schedule II drugs.

Drugs on this schedule include:

- Anabolic steroids;
- Intermediate-acting barbiturates, such as talbutal;
- Ketamine, a drug that was originally developed as a milder substitute for PCP (primarily to be used as a human anesthetic) but has since become popular as a veterinary anesthetic;
- Paregoric;
- Xyrem, a preparation of GHB used to treat narcolepsy. Xyrem is in Schedule III but with a restricted distribution system;
- Marinol, a synthetic form of THC used to treat nausea and vomiting caused by chemotherapy, as well as appetite loss caused by AIDS;
- Hydrocodone/Codeine, when compounded with an NSAID (e.g. Vicoprofen, when compounded with Ibuprofen) or with paracetamol (e.g. Vicodin/Tylenol 3);
- Rohypnol (Flunitrazepam). Flunitrazepam was placed in Schedule IV in 1984 and moved to Schedule III in 1995, but the DEA is considering moving it into Schedule I because of widespread non-medical use, and the fact that flunitrazepam is not approved by the FDA. It is best known as a date rape drug but is also fairly widely used in recreational ways. Flunitrazepam is already classified as a Schedule I drug in several states.

Schedule IV Drugs

Findings required:

> *(A) The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule III.*
> *(B) The drug or other substance has a currently accepted medical use in treatment in the United States.*
> *(C) Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule III.*

Control measures are similar to Schedule III.

Drugs on this schedule include:

- Benzodiazepines, such as alprazolam (Xanax), chlordiazepoxide (librium), and diazepam (Valium);
- Zolpidem (sold in the U.S. as Ambien);
- Long-acting barbiturates such as phenobarbital;
- Partial agonist opioid analgesics, such as propoxyphene (Darvon) and pentazocine (Talwin);
- Certain non-amphetamine stimulants, including pemoline and the psuedostimulant Modafinil.

Schedule V Drugs

Findings required:

> *(A) The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule IV.*
> *(B) The drug or other substance has a currently accepted medical use in treatment in the United States.*
> *(C) Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule IV.*

Schedule V drugs are sometimes available without a prescription.

Drugs on this schedule include:

- Cough suppressants containing small amounts of codeine;
- Preparations containing small amounts of opium or Diphenoxylate (used to treat diarrhea);
- Pregabalin, an anticonvulsant and pain modulator.

Other Provisions

The federal law has only five schedules, but some states have added a "Schedule VI" to cover certain substances which are not "drugs" in the conventional sense, but are nonetheless abused recreationally;

these include toluene (found in many types of paint, especially spray paint) and similar inhalants such as amyl nitrite (or poppers), butyl nitrite, and nitrous oxide (found in many types of aerosol cans). Many state and local governments enforce age limits on the sale of products containing these substances.

Due to pseudoephedrine being widely used in the manufacture of methamphetamine, the state of Oregon now requires a prescription for pharmacies to dispense any cold remedy containing pseudoephedrine. The U.S. Congress passed the Control Methamphetamine Epidemic Act (2005) as part of Patriot Act. This law requires customer signature of a “log-book” and presentation of valid ID in order to purchase PSE-containing products and limits the amount that can be purchased in a single transaction and a month. This affects many preparations which were previously available over-the-counter without restriction, such as Sudafed™, Actifed™, their generic equivalents, etc.

Pharmaceuticals that require a prescription to be dispensed often are not covered under the Controlled Substances Act. This category includes medicines which should only be taken under a doctor's care, or which may have harmful interactions with other substances, but which are not known to be addictive and which are not used recreationally. These medications are used to treat a wide variety of medical conditions and to manage chronic conditions.

Drugs requiring prescriptions are sometimes also known as legend drugs because legislation requires labels with the legend, "Caution! Federal law prohibits dispensing without a prescription."

The term controlled drugs is sometimes used for scheduled drugs because of the additional controls placed on them (beyond the need for a prescription).

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Appendix C

U.S. Drug Enforcement Administration Methamphetamine Lab Seizures by State, 2004-2012

State	2004	2005	2006	2007	2008	2009	2010	2011	2012
Alabama	797	524	269	247	617	671	718	291	192
Alaska	121	66	19	7	18	13	22	5	1
Arizona	218	133	42	21	33	24	18	5	9
Arkansas	1339	692	432	368	401	662	814	282	100
California	778	468	414	279	355	269	182	107	79
Colorado	411	268	133	72	60	48	31	13	14
Connecticut	0	4	3	0	1	2	1	0	2
Delaware	3	1	0	0	1	1	3	2	9
Florida	441	471	200	185	216	416	527	160	284
Georgia	545	429	191	118	197	216	6331	139	60
Hawaii	10	12	3	1	0	0	3	0	0
Idaho	75	35	23	23	13	17	19	8	3
Illinois	1576	1425	840	394	369	411	474	633	801
Indiana	1377	1488	800	813	739	1328	1240	1437	1429
Iowa	1666	913	348	198	239	336	379	408	376
Kansas	636	410	183	101	159	181	239	196	136
Kentucky	608	606	334	305	441	741	1359	1748	919
Louisiana	176	134	28	54	44	160	218	76	55
Maine	4	5	5	1	4	1	4	5	7
Maryland	3	7	7	2	2	0	4	1	1
Massachusetts	1	8	2	4	3	3	2	2	3
Michigan	459	509	284	212	454	713	864	437	492
Minnesota	288	168	68	48	46	31	27	9	6
Mississippi	523	345	277	178	439	938	912	321	5
Missouri	2913	2313	1317	1277	1510	1793	1946	2075	1825
Montana	104	35	13	10	10	18	21	11	8
Nebraska	321	283	32	29	65	40	27	18	9

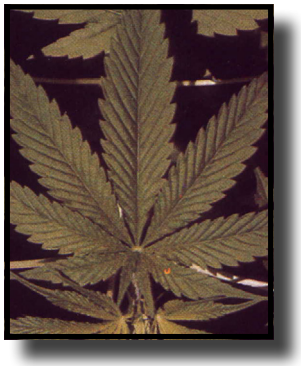
State	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nevada	152	85	44	24	17	16	13	16	3
New Hampshire	2	9	4	3	1	7	8	15	13
New Jersey	2	3	6	1	4	0	1	0	2
New Mexico	223	102	51	44	73	66	66	22	17
New York	69	26	42	13	20	17	35	46	147
North Carolina	472	487	211	158	197	244	236	396	457
North Dakota	238	171	40	27	33	35	8	8	15
Ohio	533	657	357	230	258	336	375	352	634
Oklahoma	899	326	218	114	191	781	873	997	678
Oregon	632	232	66	41	46	17	21	11	9
Pennsylvania	136	100	63	18	24	43	39	10	96
Rhode Island	0	0	3	0	0	0	0	1	1
South Carolina	336	252	111	68	130	151	343	338	355
South Dakota	35	25	15	13	11	9	22	5	10
Tennessee	2341	1717	892	599	829	1487	2146	2315	1585
Texas	733	438	187	156	249	274	194	86	32
Utah	107	67	39	8	15	13	10	9	2
Vermont	1	2	0	2	0	0	4	0	4
Virginia	108	86	22	25	21	29	106	202	221
Washington	954	545	335	240	127	70	46	36	8
West Virginia	326	445	166	111	116	139	207	925	59
Wisconsin	109	79	33	7	16	26	45	41	31
Wyoming	27	13	5	9	6	8	11	2	3
Washington, DC	1	0	0	0	0	0	2	1	0
U.S. Total	**23,829**	**17,619**	**9,177**	**6,858**	**8,820**	**12,801**	**15,196**	**13,390**	**11,207**

Source: U.S. Drug Enforcement Administration: http://www.dea.gov/pubs/state_factsheets.html and EPIC's National Clandestine Laboratory Seizure System

Appendix D

Butane Hash Oil Extractions (BHO) and Grow Operations

Butane Hash Oil Extractions (BHO)



Types:

- Marijuana Infused Products (MIPs) Kitchens/Labs
- Grows
- Dispensary
- Bakery

Why BHO?

- Low overhead and investment with high yield of tetrahydrocannabinol (THC)
- Legal and Illegal both pose threat of harm to first responders

Legal Extractions

- Comply with the local jurisdictional fire code and laws
- Must use a closed system if using flammables such as ethanol, acetone, butane, propane, carbon dioxide, alcohol, heptanes and hexane.

Flammable Extraction/Distillation (closed system)

Process of infusing flammables such as butane across a yield of marijuana plant in order to extract hash oil in solution. Once the infusion has occurred, the product will need a boil off in order to produce the viscous hash oil for consumer use. This can be achieved by vacuum systems. All systems need to be closed systems, and are required to keep flammable and byproducts contained.

Closed systems will still require a boil off to flatten and disperse product evenly.

Carbon Dioxide Extraction or "Super Critical" extraction.

Closed system that pressurizes up to 4,000 psi of CO2 across a yield of marijuana in order to extract Honey Oil. Once oil has been extracted from CO2 process, it still needs to be removed from solution by a solvent such as alcohol.

Illegal Extractions

- Open systems
- No control of loss of flammable vapors
- Clandestine by definition
- Primary process is to use butane for extraction
- Relies on vapor pressure of flammable to determine the amount of time needed for finished product in lieu of a vacuum system

Several cases have been documented from refrigerators blowing up from the cook putting the product in the freezer, allowing the flammable vapors to enter the refrigerator, and ultimately coming into contact with the motor, causing an ignition and explosion. Lack of understanding of basic chemical and physical properties

Types of Harm when Dealing with BHO or Other Extraction Processes

- Flammable atmospheres
- High pressure systems (4,000-5,000 psi)
- Up to 200 pounds of flammable gas on site to extract oil
- Booby traps
- Unstable waste
- Irresponsible cooks

Several cases recently have shown that the cooling process

In Colorado, there were nine documented cases of structure fires resulting from an explosion from BHO. From January through April 2014, there were 17 documented structure fires.

Grow Operations (Legal and Illegal)

The reality of being reasonably safe at a marijuana grow, either legal or illegal, cannot be confirmed by any first responder. The multiple combinations and creativity of the growers will continue to inhibit the ability of first responders to operate as they normally do. Marijuana grow operations come in several forms:

- ***Grow***- This is where the product is grown from seed to harvest. The AHJ has the ability to dictate quantity and fire code regulations of the operation.
- ***Dispensary***- This where the end product can be purchased for consumer use.
- ***COOP***- Licensed caregiver who grows marijuana at either the residence of the one they are caring for, or can set up a business-like structure off-site and grow marijuana for the patients under their care.
- ***Marijuana Infused Product Kitchen/Labs***- Place where edibles are produced that contain marijuana derivatives in the product, i.e. breads, cookies, brownies, tea, etc…

Types of Harm from Grow Operations Both Legal and Illegal

- Security plating on entrance, exits and roofs
- Large amounts of electrical hazards with redundant back-ups in the case of a power failure or disruption of service
- Entanglement hazards from the netting, ducting, electrical cords and overhead lighting
- Labyrinth designs of offices and warehouse space
- Fumigation

Appendix E

Sample Emergency Sample Information Form

Toll Free 1-800-421-IOWA	University of Iowa Hygienic Laboratory Emergency Sample Information Form	24 hr. Duty Officer 319-530-5981

UHL No.:_____ Case No.:_____

Sample Collection Information: REQUIRED			
Date:	Time:	Incident CCR #:	
Submitting person's name:	Last:	First:	Middle Initial:
Submitting Agency:	Agency 24 hr. Phone No.:	Agency Alternate No.:	
Submitting Agency Street Address:	State:	Zip:	
Incident Location:	Description of Collection Site:		
Date/Time Sample Collected:	Photos Taken: ☐ Yes ☐ No		
Is Sample Biological Specimen? Yes? ☐ If yes;	Blood: ☐ Urine: ☐ Swab: ☐ Tissue: ☐ Other:		
Environmental Sample? Yes? ☐ If yes;	How was sample collected ?(wipe, air monitor, sweep, etc.):		
Sample amount: mL ☐ or grams ☐	Sample Description:		
Person/Agency Collecting Sample:	Phone No.:		
Person/Agency to whom Report is to be issued:	Report Receiving Address or Fax:		

Safety Pre-Screening: REQUIRED	
Credible Terrorism Threat (per Iowa criteria)?: Yes ☐ No ☐	Testing Priority ☐ Routine ☐ Emergency
What agent(s) suspected (Biological, Chemical, or Radiological):	

Field Tests / Results: IF APPLICABLE	
Agency that Performed Field Testing :	Telephone No. of Agency that Performed Field Testing:
Field Tests Performed:	Results:
VOC	
pH	
Explosives	
Radiological	Survey Meter Type: Cal. Date:
Additional notes/comments:	

CST Tests / Results					
Operator's Initials:		Time:		Date:	
Sample Medium:	Liquid	Solid	Gas	Vegetation	Other
PCR Results:			Hapsite Results:		
JPO Bioticket:			Gram Stain:		
FTIR:			Comments:		

Sample Returned: REQUIRED	
Is the remaining sample to be returned? Yes? ☐ No? ☐ Tel./Fax numbers for return: ( ) ( )	Contact Person Name/Address for the Return:
Comments:	
Name (print) and initials of person completing this form:	

WHITE – UNIVERSITY HYGIENIC LABORATORY YELLOW – 71ST CIVIL SUPPORT TEAM PINK - HAZMAT

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Appendix F
Sample Chain of Custody Form

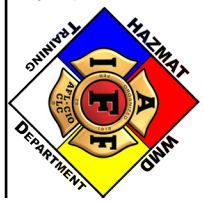
State Hygienic Laboratory at the University of Iowa

CHAIN OF CUSTODY (COC)

Sample Collector's name or initials	Sample ID Number	Type (solid, liquid, wipe)	Quantity (volume, weight)	Analysis/Comments Instrument, Sample Fate/Qty Remaining

	Sample Relinquished by		Sample Received by	
1	Signature	Date	Signature	Date
	Print	Time	Print	Time
2	Signature	Date	Signature	Date
	Print	Time	Print	Time
3	Signature	Date	Signature	Date
	Print	Time	Print	Time
4	Signature	Date	Signature	Date
	Print	Time	Print	Time
5	Signature	Date	Signature	Date
	Print	Time	Print	Time
6	Signature	Date	Signature	Date
	Print	Time	Print	Time

A copy of this form must be given to the sample custodian each time a sample is relinquished.



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Appendix G
Standard Operating Procedures

September 7, 1998
Rev. January 23, 2002
Rev. January 10, 2005

INCIDENT RESPONSE

ILLICIT DRUG LABS

PURPOSE

The purpose of this procedure is to establish guidelines to ensure safety at illicit drug lab responses or investigations and seizures when assisting law enforcement agencies. Because of the chemicals involved, response to a clandestine drug lab is always a hazardous materials incident. Remember it's a crime scene. The primary responsibility for controlling the incident, however, belongs to law enforcement, not the fire department.

DEFINITIONS

Illicit or Clandestine Drug Lab

Illegal, covert operations, which manufacture controlled substances using chemicals and other materials. This includes active labs and dump sites.

- Active Lab. An illicit drug lab that has chemical reactions taking place.
- Boxed Lab. An illicit lab that contains the precursors, reagents or catalysts for the production of illegal drugs, but no reactions are taking place.

Defensive Actions

Actions which first responders can safely take without coming into direct contact with a hazardous material.

Dumpsite

A location where chemicals and/or items used in the manufacturing of illicit drugs has been illegally discarded. These locations may contain hazardous materials, biological and physical hazards.

Exposed

When a chemical, an infectious material or other agent enters, or is in direct contact with, the body.

Offensive Actions

Actions which put first responders into direct contact with hazardous materials.

PROCEDURE

In order to operate safely during illicit drug labs emergency situations, the following special precautions must be followed and rigidly enforced.

Fire Department Responsibilities:

The fire department's role shall be to provide support in the form of:

1. Decontamination operations
2. Advise in establishing control zones and evacuation distances
3. Emergency Medical Services
4. Fire protection
5. Atmospheric monitoring
6. Containment operations at the scene, only after the area has been cleared of all hazards such as suspects, weapons and booby traps

Note: All actions must be DEFENSIVE when requested for stand-by to assist law enforcement agencies during the initial raid on a suspected illicit lab. All fire department companies shall stage a minimum 300 feet from the incident until the scene is declared safe by law enforcement.

Note: When interior operations may be required at a known illicit lab for tasks such as rescue operations, the incident commander must conduct a risk versus benefit analysis before responders enter the structure.

When a lab is discovered during interior fire operations, such as overhaul operations, a situational assessment as to what potential hazards may exist must take place. Actions shall be taken to prevent exposure to any chemical or physical hazard before operations continue.

Note: All communication regarding illicit drug labs shall be through secure methods. Do not communicate information about the drug lab or occupants via radio.

All actions taken must be deliberate and planned with safety in mind. Every effort must be made to obtain and evaluate all available information concerning the incident before any actions are taken.

Always follow the basic APIE: A Risk-Based Response Process:

Analyze the incident
Plan the response
Implement the planned response
Evaluate the progress.

Company Officer Responsibilities:

During an emergency response when an illicit drug lab is discovered, the following shall be performed:

1. Notify the fire officer in charge.
2. Notify law enforcement of situation.
3. The fire officer and/or hazmat team leader shall analyze the containers, chemicals and physical hazards to identify the potential health risks.
4. Determine if personnel have been contaminated.
5. A determination will be made as to further actions taken.

Note: The Incident Commander will confer with the hazmat team leader and Illicit lab emergency response team leader to make a determination as to any other operations that shall be performed.

SAFETY CONSIDERATIONS

1. At all times, members shall practice avoidance techniques for illicit drug labs.
2. All observations must be made with the eyes and not the hands.
3. Decontamination shall be established at all hazmat incidents.
4. Decontamination procedures will be according to departmental procedures for all contaminated personnel and equipment.
5. When performing decontamination on suspects in police custody, ensure law enforcement officers are in close proximity to the decontamination operation.
6. Any exposures to hazardous materials shall be reported to the Incident Commander or designee, and documented on the department's exposure form.
7. Avoid the use of electrical devices on the scene if flammable vapors are present due to explosion hazards.
8. NEVER remove any items or chemicals from a lab site.

TERMINATION

1. Secure the scene.
2. Conduct team debriefing as soon as possible.
3. Identify any exposures and report to the company officer. An exposure report must be filled out and forwarded to the department health and safety officer.
4. Remove and isolate any contaminated personal protective equipment for assessment.
5. Return to service.

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Appendix H
Glossary

The terms in this glossary have been consolidated from a variety of sources (e.g.,the United States Department of Transportation, the United States National Incident Management System (NIMS), NFPA® standards). The source for each term is provided in brackets. The wording and formatting used by the sources have been preserved.

Acid. Any chemical with a low pH that, in water solution, can burn the skin or eyes. Acids turn litmus paper red and have pH values of 0 to 6. (US DOL, 1996)

Active lab. Labs in the process of manufacturing an illegal drug.

Acute toxicity. Adverse health effects resulting from a brief exposure to a chemical substance or mixture. The effects may be reversible or irreversible. [Redbook[1]]

Agency. A division of government with a specific function offering a particular kind of assistance. In the Incident Command System, agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance). Governmental organizations are most often in charge of an incident, though in certain circumstances private-sector organizations may be included. Additionally, nongovernmental organizations may be included to provide support. [NIMS 2008]

Agent. An authorized person who acts on behalf of or at the direction of a manufacturer, distributor, or dispenser; except that such term does not include a common or contract carrier, public warehouseman, or employee of the carrier or warehouseman, when acting in the usual and lawful course of the carrier's or warehouseman's business. [Title 21 §802.3]

Air-Purifying Respirator (APR). A type of respirator that filters contaminated air.

Alkali. Any chemical with a high pH that in water solution is irritating or caustic to the skin. Strong alkalies in solution are corrosive to the skin and mucous membranes. Example: sodium hydroxide, referred to as caustic soda or lye. Alkalis turn litmus paper blue and have pH values from 8 to 14. Another term for alkali is base. (US DOL, 1996)

Analyze. The process of identifying a hazardous materials/weapons of mass destruction (WMD) problem and determining likely behavior and harm within the training and capabilities of the emergency responder. [NFPA® 472, 3.2.2]

Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or procedure. [NFPA® 472, 3.3.2)

1 *Guidelines for Law Enforcement for the Cleanup of Clandestine Drug Laboratories - 2005 Edition*. U.S. Environmental Protection Agency and U.S. Drug Enforcement Administration.

Awareness Level Personnel. (29 CFR 1910.120: First Responder at the Awareness Level) Personnel who, in the course of their normal duties, could encounter an emergency involving hazardous materials/ weapons of mass destruction (WMD) and who are expected to recognize the presence of the hazardous materials/weapons of mass destruction (WMD), protect themselves, call for trained personnel, and secure the scene. [NFPA® 472, 3.3.4]

Boxed Lab (Chemical/Glass/Equipment). Lab contains the precursors, reagents, solvents and catalysts for the production of illegal drugs, but are not in the process of production at discovery time.

Catalyst. A substance that allows the chemical reaction to take place under different conditions (shorter time, lower temperature) than otherwise possible.

Chemical-Protective Clothing (CPC). Items made from chemical-resistive materials, such as clothing, hood, boots, and gloves, that are designed and configured to protect the wearer's torso, head, arms, legs, hands, and feet from hazardous materials. [NFPA® 472, 3.3.51.1]

Chronic Toxicity. Adverse health effects resulting from a continuous or intermittent exposure to low levels or doses of a chemical substance over a long period of time (weeks to years).

Clandestine Drug Laboratory. An illicit operation consisting of a sufficient combination of apparatus and chemicals that either has been, or could be, used in the manufacture or synthesis of controlled substances.

Clean-up Operation. An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment. [29 CFR 1910.120(a)(3)]

Cold Zone. The area where the command post and support functions that are necessary to control the incident are located. It is also referred to as the clean zone, green zone or support zone in other documents [EPA Standard Operating Safety Guidelines, 29 CFR 1910.120, NFPA® 472]

Colorimetric Tubes. A portable toxicity detection device consisting of detector tubes and associated pumps that are capable of measuring concentrations of a large number of gases and vapors present in industrial atmospheres. The tubes are sealed glass tubes filled with an appropriate indicator chemical to react with a particular gas or vapor and give a color reaction. [OSHA Technical Manual Section II: Chapter 3]

Combustible. A term used by the National Fire Protection Association (NFPA), Department of Transportation (DOT), and the Occupational Safety and Health Administration (OSHA) to denote substances that will burn, usually with a flashpoint greater than 100 degrees F (38 degrees Celsius).

Combustible Gas Indicator (CGI). A detection device that measures flammability.

Contaminant. A hazardous material, or hazardous component of a weapon of mass destruction (WMD), that physically remains on or in people, animals, the environment, or equipment, thereby creating a continuing risk of direct injury or a risk of exposure [NFPA® 472, 3.3.12]

Contamination. The process of transferring a hazardous material, or the hazardous component of a weapon of mass destruction (WMD), from its source to people, animals, the environment, or equipment, that can act as a carrier. [NFPA® 472, 3.3.13]

Control Zones. The areas at hazardous materials/weapons of mass destruction (WMD) incidents within an established/controlled perimeter that are designated based upon safety and the degree of hazard. [NFPA® 472, 3.3.15]

Controlled Substance. A drug or other substance, or immediate precursor, included in schedule I, II, III, IV, or V of part B of this sub-chapter. The term does not include distilled spirits, wine, malt beverages, or tobacco, as those terms are defined or used in subtitle E of the Internal Revenue Code of 1986. [Title 21 §802.6]

Controlled Substances Act. Provides the legal basis for drug law enforcement in the United States, and establishes regulations activities governing controlled substances [Public Law 91-513]

Conversion Operations. A raw/unfinished drug product is changed into a refined/finished drug by changing the chemical structure.

Coordination. The process used to get people, who could represent different agencies, to work together integrally and harmoniously in a common action or effort.

Corrosive. A substance that corrodes metal (e.g. steel) under certain conditions, or if it exhibits strongly acidic or alkaline pH, that would enable it to harm human tissue or aquatic life. [40 CFR 261.22]

Core Competencies. The knowledge, skills, and judgment needed by operations level responders who respond to releases or potential releases of hazardous materials/weapons of mass destruction (WMD). [NFPA® 472, 3.4.2]

Decontamination. The physical and/or chemical process of reducing and preventing the spread of contaminants from people, animals, the environment, or equipment involved at hazardous materials/ weapons of mass destruction (WMD) incidents. [NFPA® 472, 3.3.17] The removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects. [29 CFR 1910.120(a)(3)]

Distillation. Heating a liquid to produce vapors, then condensing the vapors to produce a more pure or refined substance.

Dumpsite. An area that contains excess chemicals, hardware and miscellaneous equipment that were used in production of the illegal drugs.

Emergency Decontamination. The physical process of immediately reducing contamination of individuals in potentially life-threatening situations with or without the formal establishment of a decontamination corridor. [NFPA® 472, 3.3.17.1]

Emergency Response Guide (ERG). A reference book, written in plain language, to guide emergency responders in their initial actions at the incident scene. [NFPA® 472, 3.3.22]

Emergency Response Plan. A plan developed by the authority having jurisdiction, with the cooperation of all participating agencies and organizations, that details specific actions to be performed by all personnel who are expected to respond during an emergency. [NFPA® 472, 3.3.48.1]

Evaluate. The process of assessing or judging the effectiveness of a response operation or course of action within the training and capabilities of the emergency responder. [NFPA® 472, 3.3.24]

Evidentiary Samples. Samples of drugs and other items collected by a law enforcement officer or certified chemist at a clandestine laboratory site to be used as evidence against the perpetrator(s). Samples are taken prior to bulk disposal of the chemicals and other materials. [Redbook, 2005]

Exposure. The process by which people, animals, the environment, and equipment are subjected to or come in contact with a hazardous material/weapon of mass destruction (WMD). [NFPA® 472, 3.3.26]

Extraction Operations. Raw plant materials is converted into a finished drug using chemical solvents and/or acids. The chemical structure is not altered in the process (e.g. changing opium to morphine).

Flammable. Any solid, liquid, vapor or gas that will ignite easily and burn. Flammable liquids are defined by DOT and NFPA as those having a flashpoint of less than 100 degrees F (38 degrees C).

Flammable Gas. DOT defines flammable gas as any material which is a gas at 68ºF (20ºC) or less than 14.7 psia (101.3kPa) of pressure (a material which has a boiling point of 68ºF (20º C) or less 14.7 psia (101.3kPa)) which is ignitable at 14.7 psia (101.3 kPa) when in a mixture of 13 percent or less by volume with air or has a flammable range at 14.7 psai (101.3 kPa) with air of at least 12 percent regardless of the lower limit. [49 CRF 173.115]

Hazardous Material. A substance (either matter – solid, liquid, or gas – or energy) that when released is capable of creating harm to people, the environment, and property, including weapons of mass destruction (WMD) as defined in 18 U.S. Code, Section 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage. [NFPA® 472, 3.3.29]

Hazardous Material Safety Officer. (NIMS: Assistant Safety Officer – Hazardous Material.) The person who works within an incident management system (IMS) (specifically, the hazardous materials branch/ group) to ensure that recognized hazardous materials/WMD safe practices are followed at hazardous materials/weapons of mass destruction (WMD) incidents. [NFPA® 472, 3.3.33]

Hot Zone. The area immediately surrounding a hazmat/WMD incident which extends far enough to prevent adverse effects from released hazardous chemicals to personnel outside the zone. This zone can also be referred to as exclusion zone, red zone or restricted zone in other sources. [EPA Standard Operating Safety Guidelines, 29 CFR 1910.120, NFPA® 472]

Immediately Dangerous to Life or Health (IDHL). An atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would interfere with an individual's ability to escape from a dangerous atmosphere. [29 CFR 1910.120(a)(3)]

Identify. To select or indicate verbally or in writing using standard terms to establish the fact of an item being the same as the one described. [NFPA® 472, 3.3.35]

Illicit Drug Lab. Illegal facility that manufacture controlled substances.

Incident. An emergency involving the release or potential release of hazardous materials/weapons of mass destruction (WMD). [NFPA® 472, 3.3.36]

Level A. SCBA plus fully encapsulating chemical resistant clothing (permeation resistant)

Level B. SCBA plus hooded chemical resistant clothing (splash suit)

Level C. Full or half-face respirator plus hooded chemical resistant clothing (splash suit)

Level D. Coverall with no respiratory protection

Liquid Splash Protective Clothing. The garment portion of a chemical-protective clothing ensemble that is designed and configured to protect the wearer against chemical liquid splashes but not against chemical vapors or gases. [NFPA® 472, 3.3.51.3]

pH. pH is a value that represents the acidity or alkalinity of a water solution. Pure water has a pH of 7. A pH value below 7 indicates an acid solution (a pH of 1 is extremely acidic). A pH above 7 indicates an alkaline solution (a pH of 14 is extremely alkaline). Acids and alkalies (bases) are commonly referred to as corrosive materials.

Manufacture. The production, preparation, propagation, compounding, or processing of a drug or other substance, either directly or indirectly or by extraction from substances of natural origin, or independently by means of chemical synthesis or by a combination of extraction and chemical synthesis, and includes any packaging or repackaging of such substance or labeling or relabeling of its container; except that such term does not include the preparation, compounding, packaging, or labeling of a drug or other substance in conformity with applicable State or local law by a practitioner as an incident to his administration or dispensing of such drug or substance in the course of his professional practice. The term "manufacturer" means a person who manufactures a drug or other substance. [Title 21 §802.15]

Material Safety Data Sheet (MSDS). A form, provided by manufactures and compounders (blenders) of chemicals, containing information about chemical composition, physical and chemical properties, health and safety hazards, emergency response, and waste disposal of the material. [NFPA® 472, 3.3.41] As part of the Global Harmonization System, MSDSs are being replaced by Safety Data Sheets (SDS). Companies can comply with the old rule or the new rule or both until June 1, 2016.

Methamphetamine. A synthetic stimulant.

Mission-Specific Competencies. The knowledge, skills, and judgment needed by operations level responders who have completed the operations level competencies and who are designated by the authority having jurisdiction to perform mission-specific tasks, such as decontamination, victim/hostage rescue and recovery, evidence preservations, and sampling. [NFPR® 472, 3.4.3]

Monitoring Equipment. Instruments and devices used to identify and quantify contaminants. [NFPA® 472, 3.3.42]

Operations Level Responders. Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents for the purpose of implementing or supporting actions to protect nearby persons, the environment, or property from the effects of the release. [NFPA® 472, 3.4.4]

Operations Level Responders Assigned to Perform Mass Decontamination During Hazardous Materials/Weapons of Mass Destruction (WMD) Incidents. Persons, competent at the operations level, who are assigned to implement mass decontamination operations as hazardous materials/weapons of mass destruction (WMD) incidents. [NFPA® 472, 3.4.8]

Operations Level Responders Assigned to Respond to Illicit Laboratory Incidents. Persons, competent at the operations level, who,at hazardous materials/weapons of mass destruction (WMD) incidents involving potential violations of criminal statutes specific to the illegal manufacture of methamphetamines, other drugs, or weapons of mass destruction (WMD), are assigned to secure the scene, identify the laboratory/process, and preserve evidence. [NFPA® 472, 3.4.12]

Oxygen Deficiency. The concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where percentage of oxygen by volume is less than 19.5 percent oxygen. [29 CFR 1910.120(a)(3)]

Penetration. The movement of a material through a suit's closures, such as zippers, buttonholes, seams, flaps, or other design features of chemical-protective clothing, and through punctures, cuts, and tears. [NFPA® 472, 3.3.45]

Permeation. A chemical action involving the movement of chemicals, on a molecular level, through intact material. [NFPA® 472, 3.3.46]

Permissible Exposure Limit. The exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z. [29 CFR 1910.120(a)(3)] Regulated values based on time-weighted average concentrations that must not be exceeded during any 8-hour work-shift of a 40-hour workweek. [Redbook, 2005]

Personal Protective Equipment (PPE). The equipment provided to shield or isolate a person from the chemical, physical, and thermal hazards that can be encountered at hazardous materials/weapons of mass destruction (WMD) incidents. [NFPA® 472, 3.3.47]

Photo Ionization Detector (PID). A device used to detect the presence of toxicity in the atmosphere. The reading represents the total amount of gases and vapors in the air.

Precursor. A raw material or controlled substance that becomes part of the finished drug when it is used in a chemical reaction. Some precursors are hazardous in their own right, and are regulated through federal and state substance abuse laws. [Redbook]

Protective Clothing. Equipment designed to protect the wearer from heat and/or from hazardous materials, or from the hazardous component of a weapon of mass destruction contacting the skin or eyes. [NFPA® 472, 3.3.51]

Published Exposure Level. The exposure limits published in "NIOSH Recommendations for Occupational Health Standards" dated 1986, which is incorporated by reference as specified in § 1910.6, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication "Threshold Limit Values and Biological Exposure Indices for 1987-88" dated 1987, which is incorporated by reference as specified in § 1910.6.

Reactive. Substances that are normally unstable and have a tendency to react violently with water or explode during handling. [40 CFR 261.23]

Reagent. A chemical that reacts chemically with one or more precursors but does not become part of the finished product.

Reflux. A method of heating liquid which allows the vapors to condense and return to be heated.

Seizure. The act of taking control of a clandestine (illicit) drug laboratory, which involves planning, initial entry, assessment, processing, exit and follow-up. [Redbook]

Solvent. Any liquid used in various chemical reactions or extraction procedures to dissolve or separate precursors, reagents or drug substances, but which is not incorporated into the final product.

Structural Fire Fighting Protective Clothing. The fire-resistant protective clothing normally worn by fire fighters during structural fire-fighting operations, which includes a helmet, coat, pants, boots, gloves, PASS device, and a fire-resistant hood to cover parts of the head and neck not protected by the helmet and respirator facepiece. [NFPA® 472, 3.3.51.4]

Synthesis Labs. The most commonly encountered type of illicit drug lab.

Toxicity. The degree to which a substance (a toxin or poison) can harm humans or animals.

Vapor Protective Clothing. The garment portion of a chemical-protective clothing ensemble that is designed and configured to protect the wearer against chemical vapors or gases. [NFPA® 472, 3.3.51.5]

Qualified. Having knowledge of the installation, construction, or operation of apparatus and the hazards involved. [NFPA® 472, 3.3.52] A person with specific training, knowledge and experience in the area for which the person has the responsibility and the authority to control. [29 CFR 1910.120(a)(3)]

Respiratory Protection. Equipment designed to protect the wearer from the inhalation of contaminants. [NFPA® 472, 3.3.53]

Risk-Based Response Process. Systematic process by which responders analyze a problem involving hazardous materials/weapons of mass destruction (WMD), assess the hazards, evaluate the potential consequences, and determine appropriate response actions based upon facts, science, and the circumstances of the incident. [NFPA® 472, 3.3.55]

Scenario. A sequence or synopsis of actual or imagined events used in the field or classroom to provide information necessary to meet student competencies; can be based upon threat assessment. [NFPA® 472, 3.3.57]

Warm Zone. The area between hot and cold zones where personnel and equipment decontamination and hot zone support take place. It includes control points for the access corridor and thus assists in reducing the spread of contamination. It can also be referred to as the contamination reduction corridor (CRC), contamination reduction zone (CRZ), yellow zone or limited access zone. [EPA Standard Operating Safety Guidelines, 29 CFR 1910.120, NFPA® 472]

Weapons of Mass Destruction (WMD). (1) Any destructive device, such as any explosive, incendiary, or poison gas bomb, grenade, rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge of more than one quarter ounce (7 grams), mine, or device similar to the preceding description; (2) any weapon involving toxic or poisonous chemicals; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life. [NFPA® 472, 3.3.63]

Appendix I
Abbreviations/Acronyms

AHJ	Authority having jurisdiction
APIE	Analyze, Plan, Implement, Evaluate
APR	Air purifying respirator
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CPC	Chemical protective clothing
CPO	Chemical protective overgarment
DEA	U.S. Drug Enforcement Administration
DHS	U.S. Department of Homeland Security
EMS	Emergency medical services
EOD	Explosive ordinance disposal
EPIC	El Paso Intelligence Center
ERG	Emergency Response Guidebook
EPA	U.S. Environmental Protection Agency
FBI	Federal Bureau of Investigation
Hazmat	Hazardous material
HAZWOPER	Hazardous Waste Operations and Emergency Response
HHA	Hand-held assay
IC	Incident Commander
IDHL	Immediately dangerous to life or health
JSLIST	Joint service lightweight integrated suit technology
LEL	Lower exposure limit
LEO	Law enforcement officer
LRN	Laboratory Response Network
MOPP	Mission-oriented protective postures
MSDS	Material Safety Data Sheets
NFPA®	National Fire Protection Association
NH_3	Ammonia
NIOSH	National Institute for Occupational Safety and Health
O_2	Oxygen
OSHA	Occupational Safety and Health Administration
PAPR	Powered air-purifying respirator

PCR	Polymerase chain reaction
PEL	Permissible exposure limit
pH	Power of hydrogen
PID	Photo ionization detector
PPE	Personal protective equipment
SCBA	Self-contained breathing apparatus
SFPC	Structural fire-fighting protective clothing
SOP	Standard operating procedure
S.W.A.T.	Special Weapons and Tactics
THC	Tetrahydrocannabinol
WMD	Weapons of mass destruction

Appendix J

Cross-Walk for Line Items in NFPA® 472

The IAFF strives to promote the health and safety of fire fighter by developing training that meets or exceeds professional standards such as those developed by the National Fire Protection Association (NFPA). The table below lists the line items from NFPA® 472, Standard for Competence of Responders to Hazardous Materials / Weapons of Mass Destruction Incidents as listed in the 2013 edition. For each line item, a cross-reference to the instructor guide (IG), PowerPoint (PP) slide, and participant guide (PG) are provided.

Line Item	Objective	IG Page #	PP Slide #	PG Page #
4	**Competencies for Awareness Level Personnel**			
4.2	**Competencies - Analyzing the Incident**			
4.2.1	**Detecting the Presence of Hazardous Materials/WMD.** Given examples of various situations, awareness level personnel shall identify those situations where hazardous materials/WMD are present by completing the following requirements.	Unit 1 & Unit 2	Unit 1 & Unit 2	Unit 1 & Unit 2
4.2.1 (18)	(18) Identify at least four locations, indicators, and hazards associated with illicit laboratories (clandestine laboratories, weapons lab, ricin lab).	Unit 1 & Unit 2	Unit 1 & Unit 2	Unit 1 & Unit 2

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.5	**Mission-Specific Competencies: Evidence Preservation and Sampling**			
6.5.2	**Competencies - Analyzing the Incident**			
6.5.2.1	**Determine If the Incident Is Potentially Criminal in Nature and Identify the Law Enforcement Agency** Having Investigative Jurisdiction. Given examples of hazardous materials/WMD incidents involving potential criminal intent, the responder assigned to evidence preservation and sampling shall describe the potential criminal violation and identify the law enforcement agency having investigative jurisdiction and shall meet the following requirements:			
6.5.2.1(1)(c)	(1) Given examples of the following hazardous materials/WMD incidents, the operations level responder shall describe products potentially encountered in the incident associated with each situation: (c) Hazardous materials/WMD illicit laboratory	2-8 2-12 2-14	2-7 2-9 through 2-23	2-9 2-13 2-14
6.5.2.1(2)(c)	(2) Given examples of the following hazardous materials/WMD incidents, the operations level responder shall identify the agency(s) with investigative authority and the incident response considerations associated with each situation: (c) Hazardous materials/WMD illicit laboratory	4-6	4-8	4-7

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.5	**Mission-Specific Competencies: Evidence Preservation and Sampling**			
6.5.3	**Competencies - Planning the Response**			
6.5.3.1	**Identify Unique Aspects of Criminal Hazardous Materials/WMD Incidents.** The responder assigned to evidence preservation and sampling shall describe the unique aspects associated with illicit laboratories, hazardous materials/WMD incidents, and environmental crimes and shall meet the following requirements:			
6.5.3.1 (1)	(1) Given an incident involving illicit laboratories, a hazardous materials/WMD incident, or an environmental crime, the responder shall perform the following tasks:			
	(a) Describe the procedure to secure, characterize, and preserve the scene.	4-14	4-12	4-15
	(b) Describe the procedure to document personnel and scene activities associated with the incident.			
	(c) Describe the procedure to determine whether or not the responders are within their legal authority to perform evidence preservation and sampling tasks.	4-8	4-9	4-9
	(d) Describe the procedure to notify the agency with investigative authority.	4-10	4-10	4-11
6.5.3.1 (1)	(e) Describe the procedure to notify the Explosive Ordnance Disposal (EOD) personnel.			
	(f) Describe potential sample and evidence.			
	(g) Identify the applicable monitoring device.			

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.5	**Mission-Specific Competencies: Evidence Preservation and Sampling**			
6.5.3	**Competencies - Planning the Response**			
6.5.3.1 (1)	(h) Describe the procedures to protect samples and evidence from cross contamination.	4-14	4-12	4-15
	(i) Describe documentations procedures.			
	(j) Describe evidentiary sampling techniques.			
	(k) Describe field screening protocols for sample and evidence collected.			
	(l) Describe evidence labeling and packaging procedures.			
	(m) Describe evidence decontamination procedures.			
6.5.3.1 (1)	(n) Describe evidence packaging procedures for evidence transportation.			
	(o) Describe chain-of-custody procedures.			
6.5.3.1 (2)	(2) Given an example of an illicit laboratory, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:			
	(a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.	2-10		2-11
	(b) Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.	3-12 3-14 3-26	3-7 3-8 3-9 3-19	3-13 3-15 3-27

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.5	**Mission-Specific Competencies: Evidence Preservation and Sampling**			
6.5.3	**Competencies - Planning the Response**			
6.5.3.1 (2)	(c) Describe the sampling options associated with liquid and solid sample and evidence collection.			
	(d) Describe the field screening protocols for collected samples and evidence			

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.1	**General**			
6.9.1.1.1	The operations level responder assigned to respond to illicit laboratory incidents shall be that person, competent at the operations level, who, at hazardous materials/WMD incidents involving potential violations of criminal statutes specific to the illegal manufacture of methamphetamines, other drugs, or WMD, is assigned to secure the scene, identify the laboratory or process, and preserve evidence at hazardous materials/ WMD incidents involving potential violations of criminal statutes specific to illegal manufacture of methamphetamines, other drugs or WMD.			
6.9.1.1.2	The operations level responder who respond to illicit laboratory incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), and all core competencies at the operations level (*see Chapter 5*), all mission-specific competencies for personal protective equipment (*see Chapter 6*), and all competencies in this section.			
6.9.1.2.1	The goal of the competencies in this section shall be to provide the operations level responders assigned to respond to illicit laboratory incidents with the knowledge and skills to perform the tasks in 6.9.1.2.2 safely and effectively.			
6.9.1.2.2	When responding to hazardous materials/ WMD incidents, the operations level responder assigned to illicit laboratory operations shall be able to perform the following tasks:			
6.9.1.2.2 (1)	(1) Analyze a hazardous materials/WMD incident in order to determine the complexity of the problem and potential outcomes and whether the incident is potentially a criminal illicit laboratory operation.	1-44 Unit 2	1-38 Unit 2	1-45 Unit 2

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.1	**General**			
6.9.1.2.2 (2)	(2) Plan a response for a hazardous materials/WMD incident involving potential illicit laboratory operations in compliance with evidence preservation operations within the capabilities and competencies of available personnel, personal protective equipment, and control equipment after notifying the responsible law enforcement agencies of the problem.	1-44 3-4	1-38 3-3	1-45 3-5
6.9.1.2.2 (3)	(3) Implement the planned response to a hazardous materials/WMD incident involving potential illicit laboratory operations utilizing applicable evidence preservation guidelines.	1-44 4-4 4-18	1-38 4-3 4-4 4-5 4-6 4-14	1-45 4-5 4-19

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.2	**Competencies - Analyzing the Incident**			
6.9.2.1	**Determining If a Hazardous Material/WMD Incident Is an Illicit Laboratory Operation.** Given examples of hazardous materials/WMD incidents involving illicit laboratory operations, the operations level responder assigned to respond to illicit laboratory incident shall identify the potential drugs/WMD being manufactured by completing the following related requirements:	1-8 1-10 1-12		1-9 1-11 1-13
6.9.2.1(1)	(1) Given examples of illicit drug manufacturing methods, describe the operational considerations, hazards, and products involved in the illicit process.	1-20 1-22 1-24 2-10 2-12 2-14	1-19 1-20 1-21 2-8	1-21 1-23 1-25 2-11 2-13 2-15
6.9.2.1(2)	(2) Given examples of illicit chemical WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.			
6.9.2.1 (3)	(3) Given examples of illicit biological WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.	3-36	3-28	3-37
6.9.2.1(4)	(4) Given examples of illicit laboratory operations, describe the potential booby traps that have been encountered by response personnel.	2-18	2-26 2-27 2-28	2-19
6.9.2.1(5)	(5) Given examples of illicit laboratory operations, describe the agencies that have investigative authority and operational responsibility to support the response.	4-6 Appendix F		4-7 Appendix F

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.3	**Competencies - Planning the Response**			
6.9.3.1	**Determining the Response Options.** Given an analysis of hazardous materials/WMD incidents involving illicit laboratories, the operations level responder assigned to respond to illicit laboratory incidents shall identify possible response options.	Unit 3 Unit 4	Unit 3 Unit 4	Unit 3 Unit 4
6.9.3.2	**Identifying Unique Aspects of Criminal Hazardous Materials/WMD Incidents.**	1-8		1-9
6.9.3.2.1	Operations level responders assigned to respond to illicit laboratory incidents shall identify the unique operational aspects associated with illicit drug manufacturing and illicit WMD manufacturing.	Unit 2	Unit 2	Unit 2
6.9.3.2.2	Given an incident involving illicit drug manufacturing, or illicit WMD manufacturing, the operations level responder assigned to illicit laboratory incidents shall describe the following tasks:			
	(1) Law enforcement securing and preserving the scene.			
	(2) Joint hazardous materials and EOD personnel site reconnaissance and hazard identification.			
	(3) Determining atmospheric hazards through air monitoring/detection.	3-38		3-39
	(4) Mitigation of immediate hazards while preserving evidence.	Appendix F		Appendix F
	(5) Coordinated crime scene operation with the law enforcement agency having investigative authority.	4-4 Appendix F	4-3 4-4 4-5 4-6	4-5 Appendix F
	(6) Documenting personnel and scene activities associated with the incident.	Appendix F		Appendix F

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.3	**Competencies - Planning the Response**			
6.9.3.3	**Identifying the Law Enforcement Agency That Has Investigative Jurisdiction.** The operations level responder assigned to respond to illicit laboratory incidents shall identify the law enforcement agency having investigative jurisdiction by completing the following tasks:	2-6 4-6	2-5 2-6 4-8	2-7 4-7
6.9.3.3(1)	(1) Given scenarios involving illicit drug manufacturing or illicit WMD manufacturing, identify the law enforcement agency(s) with investigative authority for the following situations:			
6.9.3.3(1)	(a) Illicit drug manufacturing.			
	(b) Illicit WMD manufacturing.			
	(c) Environmental crimes resulting from illicit laboratory operations.			
6.9.3.4	**Identifying Unique Tasks and Operations at Sites Involving Illicit Laboratories.**	2-22 2-24 2-26 4-6 4-13	2-34 through 2-39	2-23 2-25 2-27
6.9.3.4.1	The operations level responder assigned to respond to illicit laboratory incidents shall identify and describe the unique tasks and operations encountered at illicit laboratory scenes.			
6.9.3.4.2	Given scenarios involving illicit drug manufacturing or illicit WMD manufacturing describe the following:			
6.9.3.4.2 (1)	(1) Hazards, safety procedures and tactical guidelines for this type of emergency.			
6.9.3.4.2 (2)	(2) Factors to be evaluated in selection of the appropriate personal protective equipment for each type of tactical operation.	3-6 3-12	3-4 3-7	3-7 3-13
6.9.3.4.2 (3)	(3) Factors to be considered in selection of appropriate decontamination procedures.	3-50	3-46 3-47	3-51

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.3	**Competencies - Planning the Response**			
6.9.3.4.2 (4)	(4) Factors to be evaluated in the selection of detection devices.			
6.9.3.4.2 (5)	(5) Factors to consider in the development of a remediation plan.			
6.9.3.5	**Selecting Personal Protective Equipment (PPE).** Given the PPE provided by the AHJ, the operations level responder assigned to respond to illicit laboratory incidents shall select the personal protective equipment required to respond to illicit laboratory incidents based on local procedures.	3-6 3-8 3-10 3-12 3-14 3-16	3-4 3-5 3-6 3-7 3-8 3-9 3-10	3-7 3-9 3-11 3-13 3-15 3-17

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.4	**Competencies - Implementing the Planned Response**			
6.9.4.1	**Implementing the Planned Response.** Given scenarios involving an illicit drug/WMD laboratory operation involving hazardous materials/WMD, operations level responders assigned to respond to illicit laboratory incidents shall implement or oversee the implementation of the selected response options safely and effectively.			
6.9.4.1.1	Given a simulated illicit drug/WMD laboratory incident, operations level responders assigned to respond to illicit laboratory incidents shall be able to perform the following tasks:			
6.9.4.1.1(1)	(1) Describe safe and effective methods for law enforcement to secure the scene.	4-16	4-13	4-17
6.9.4.1.1(2)	(2) Demonstrate decontamination procedures for tactical law enforcement personnel (SWAT or K-9) securing an illicit laboratory.	3-50 3-52	3-45 3-46 3-47 3-48 3-49	3-51 3-53
6.9.4.1.1(3)	(3) Describe methods to identify and/or avoid potential unique safety hazards found at illicit laboratories such as booby-traps and releases of hazardous materials.	1-12 2-12 through 2-21	1-12 1-13 1-14 2-9 through 2-33	1-13 2-13 through 2-21
6.9.4.1.1(4)	(4) Describe methods to conduct joint hazardous materials/EOD operations to identify safety hazards and implement control procedures.	3-26 through 3-49 4-8 through 4-13	3-19 through 3-44 4-9 through 4-11	3-26 through 3-49 4-8 through 4-13
6.9.4.1.2	Given a simulated illicit drug/WMD laboratory incident, operations level responders assigned to respond to illicit laboratory incidents shall demonstrate methods of identifying the following during reconnaissance operations:	3-40 through 3-53	3-31 through 3-47	3-40 through 3-53
6.9.4.1.2(1)	(1) Potential manufacture of illicit drugs.	1-14 through 1-25 2-8 2-12 through 2-17	1-17 through 1-21 2-7 2-9 through 2-24	1-15 through 1-25 2-9 2-12 through 2-17

Line Item	Objective	IG Page #	PP Slide #	PG Page #
6	**Mission-Specific Competencies for Operations Level Responders**			
6.9	**Mission-Specific Competencies: Illicit Laboratories**			
6.9.4	**Competencies - Implementing the Planned Response**			
6.9.4.1.2 (2)	(2) Potential manufacture of illicit chemical WMD materials.	1-8 1-10		1-9 1-11
6.9.4.1.2(3)	(3) Potential environmental crimes associated with the manufacture of illicit drugs/WMD materials.	1-12 4-18 4-20	4-14 4-15	1-13 4-19 4-21
6.9.4.1.3	Given a simulated illicit drug/WMD laboratory incident, operations level responders assigned to respond to illicit laboratory incidents shall describe joint agency crime scene operations, including support to forensic crime scene processing teams.	4-14 4-20	4-12 4-15	4-15 4-21
6.9.4.1.4	Given a simulated illicit drug/WMD laboratory incident, operations level responders assigned to respond to illicit laboratory incidents shall describe the policy and procedures for post-crime scene processing and site remediation operations.	4-12 4-18 4-20	4-14 4-15	4-13 4-19 4-21
6.9.4.1.5	Operations level responders assigned to respond to illicit laboratory incidents shall describe local procedures for performing decontamination upon completing of the illicit laboratory mission.	3-50 3-52	3-45 3-46 3-47 3-48 3-49	3-51 3-53
Annex C	**Competencies for Responders Assigned Chemical Agent-Specific Tasks**			
C.3.2	**Competencies - Planning the Response**			
C.3.2	The responder with chemical agent-specific tasks should be able to perform the following tasks:			
C.3.2(1)	(1) Describe the hazards, safety procedures and tactical guidelines for responding to the following:			
	(b) Illicit drug manufacturing	2-10		2-11
C.3. 2(2)	(2) Describe the factors to be evaluated in selecting the correct personal protective equipment, detection devices, and decontamination for the following types of incidents:			
	(b) Illicit drug manufacturing	3-6 3-12 3-14 3-26	3-4 3-7 3-8 3-9 3-19	3-7 3-13 3-15 3-27

Line Item	Objective	IG Page #	PP Slide #	PG Page #
Annex C	**Competencies for Responders Assigned Chemical Agent-Specific Tasks**			
C.3.2	**Competencies - Planning the Response**			
C.3. 2(3)	(3) Describe the detection options for gases, liquids, and solids found at the following types of incidents:			
	(b) Illicit drug manufacturing			
C.4	**Competencies — Implementing the Planned Response.**			
C..4.2(1)	(1) Given a simulated hazardous materials/WMD incident involving a release or potential release, demonstrate the safe and effective methods for identifying the following:			
	(a) Illicit drug manufacturing laboratory	Unit 1 & Unit 2	Unit 1 & Unit 2	Unit 1 & Unit 2
C. 4.2(2)	(2) Given a simulated hazardous material/WMD incident involving release or potential release, demonstrate the methods for selecting the correct personal protective equipment, sampling equipment, detection devices, and decontamination for the following:			
	(a) Illicit drug manufacturing laboratory	3-6 3-12 3-14 3-26	3-4 3-7 3-8 3-9 3-19	3-7 3-13 3-15 3-27
C. 4.2(5)	(5) Given an example of a hazardous materials/WMD incident involving a release or potential release, demonstrate the different detection technologies that can be used when associated with the following:			
	(a) Illicit drug manufacturing laboratory			

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